Minutes of the 54th Meeting of the Tarrawonga Coal Mine Community Consultative Committee (TCCC)

Meeting Held	7h November 2018 between 10:00AM- 12:10PM		
Venue	Tarrawonga Coal Mine (TCM), training room		
Agenda Item	***Discussion and Description***	***Action and Accountability***	***Status/ Date***
1. Present and Apologies	Present: Mr David Ross (DR)- Independent Chairman, Mrs Colleen Fuller (CF)- Community Representative, Mr David Moses(DM), Gunnedah Shire council Representative, Mr Cameron Staines (CS), Narrabri Shire council Representative, Mr Tim Muldoon (TM)- Group Manager Community Relations and Pty Mrs Cath Collyer (CC)- Community Representative, Mrs Julie Heiler (JH)- Community Representative, Mrs Rebecca Ryan (RR)- Community Representative, Mr John Hamson (JHa), Operations Manager- TCM, Mr Sebastien Moreno (SM)- Environmental Superintendent- TCM,		

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	Apologies: Mr Blair Meyers (BM), (transferred to MCCM) and replaced by (JHa), Andrew Johns (AJ), Gunnedah Shire Council Representative Ann Luke, Gunnedah Shire Representative replaced by (DM)		
2. Declaration of Pecuniary or Non-Pecuniary Interests	DR- declared that he is paid a fee for participation as Independent Chairman		
3. Previous Minutes Actions	DR- Blair Meyer (BM) has been transferred to MCCM and Ann Luke (AL) has been replaced by David Moses.	DR- to write a thank you letter for BM and AL for their support to CCC meeting	
	DR - about Rural Fire Service issues in lead up to Joint CCC	DR- to consult with Cameron Staines.	Complete
	CCC members- asked for local procurement strategy to be presented.	BM- to present and discuss at the next meeting the mine procurement strategy and support to local businesses.	JHA- gave an overview presentation. JH – asked for a breakdown of financial support per Shires to present at next meeting.

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4. Business Arising	JH- Concern about potential damage of fire truck water pumps if residue of Dust suppressant is still in the water supplied by the mine.	JHa- to check with company "Dust a Side" potential risk and compatibility for fire pumps and equipment.	
	JHA- wants to discuss fire emergency with RFS members.	SM – to send invitation to RFS to come to site.	
5. Mine Progress Report	JHa: - Normal Mining Activity, - Actual production above target, - Few issues with 2 way systems stopping production. Experts engaged to sort that issue. - On-going usage of "Dust A Side" product. About 50% water usage reduction.		
6. Environmental Monitoring report	SM- Read and explained the Quarterly Environmental Report results. RR- asked why some Ground Water (GW) quality data were not available, SM – because pipes are blocked/ damaged therefore those bores can only be dipped. SM- explained water sharing in the BTM complex and water transfer from MCCM via BCM.		

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	CC- Queried about GW inflows. SM- provided a summary Table at previous CCC meeting with GW and SW modelled data provided by water experts. CCC Members – requested to have a presentation similar to MCCM and BCM on GW.	SM – to invite Hydrogeologist- (water consultant) at next CCC Meeting to make a presentation on GW.	
	SM- TCM will try to clear outside the "clearing window" to reshape the southern dump and achieve rehabilitation Target. CCC members- recommended to wait for the usual clearing period (Feb-April).		
	SM- high level of tree survival (80- to 90% depending on rehabilitated area). CCC members – don't understand DPE requirements/targets for rehabilitation if weather condition not favourable for planting.		

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7. General business	CC- asked for planning agreement	TM- to provide copy of the VPA by next meeting	complete
	JH- enquired about MOD 6 and 4MT coal haulage approved for 2018. SM- explained the MOD 6 is related to a cumulative haulage of coal from Rocglen and Tarrawonga to Town. Haulage compliance is assessed on a calendar year (Jan- to Dec) and reported in the Annual Review submitted to DPE.		
	JH- asked about ratio employees versus Contractors travelling on the haulage road. SM – said that only employees or contractors working for TCM should use that private road. JHa- said WHC policy is to recruit in priority local applicants, he has been involved with recruiting at TCM and confirmed there is no FIFO worker at TCM.	JHa- to follow up with Human Resources (HR) to find out the ratio employees versus contractors at TCM.	

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	JH- regarding the white old trucks and cars. JHa – Interested company will remove from site shortly.		
	JHa- Family Fun Day on 10th November. About 300 people expected. TCM offers Life/ work balance with Monday to Friday roster. JH- said Good initiative and some employees can spread the word to the rest of community		
	RR- requested a figure around employee's retention rate.	JHa- to follow up with HR .	
	CC- requested WHC list of trade and apprenticeship.	TM/SM- to follow up with HR and provide a copy of list.	
	DR- CCC members to provide feedbacks at AGM (i.e.: what could be done better). CCC Members- recommended to: - Promote more the "achievement and wins" – good stories. -Organise a site tour next year.		
8.Complaints	SM- No Complaint received since last CCC meeting.		

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9. Next Meeting and Other Comments	DR- next TCCC meetings will be held on 13th February 2019.		
	DR- Environmental Trust meeting held at the Boggabri Golf Club on November 8 at 12:30pm followed by the BTM CCC meeting at 2:00pm.		

Tarrawonga Coal Mine
Community Consultative Committee
Meeting #54

Environmental Monitoring Report
1 August 2018 – 31 October 2018

This report has been prepared for the Community Consultative Committee (CCC) Meeting to show Environmental monitoring performance at Tarrawonga Coal Mine (TCM) for the reporting period from August 1st to October 31st 2018. Maps with all the monitoring locations are available in *Appendix A.*

Noise Monitoring

Attended noise monitoring was undertaken at the "Bungalow" (TN4), "Barbers Lagoon" (TN3) and "Matong" (TN2) properties from 17th to 20th September 2018. The noise criterion for the mine is 35dB(A) Leq (15 min) for all operating times.

The results below and in *Appendix B* show that noise emissions from the mine did not exceed the operational noise criterion at the "Barbers Lagoon", "Bungalow" or "Matong" monitoring locations during the monitoring event.

Noise from the mine must not exceed 45 dB(A) L1 (1 min) between 10 pm and 7 am. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine. The results of the sleep disturbance monitoring show that the measured L1 (1 min) noise level did not exceed the sleep disturbance criterion.

The real time noise monitor located on the "Coomalgah" property remains a management tool so the noise criteria are not applicable at that site. Level of noise recorded at that location is managed according to the noise management plan and trigger action response plan.

Table- 1: Attended Noise Monitoring results for the Quarter *(extracted from SLR report)*

EPL ID	Location	Date	Tarrawonga Coal Mine Contribution dBA				Criteria	Measurement Periods	Weather Compliant			Compliant
			LAeq(15minute) Day	LAeq(15minute) Evening	LAeq(15minute) Night	LA1(1minute) Night			Day	Eve	Night	
79a	Barbers Lagoon	17/09/2018	I/A	N/M	29	31	Day, Evening and Night – 35 dBA LAeq(15minute)		N	Y	Y	Y
		18/09/2018	I/A	26	30	32			N	Y	N	Y
		19/09/2018	I/A	N/M	I/A	I/A			N	N	Y	Y
		20/09/2018	I/A	I/A	28	29			N	Y	Y	Y
89	Bungalow	17/09/2018	I/A	I/A	27	32	Night – 45 dBA LA1(1minute)		N	Y	Y	Y
		18/09/2018	28	I/A	29	I/A			Y	N	N	Y
		19/09/2018	I/A	I/A	I/A	I/A	Cumulative Day, Evening, Night 40 dBA LAeq(15minute)	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	N	Y	Y	Y
		20/09/2018	I/A	I/A	I/A	I/A			N	Y	Y	Y
60a	Coomalgah/ Matong	17/09/2018	27	I/A	I/A	I/A			Y	Y	Y	Y
		18/09/2018	29	I/A	I/A	I/A			N	N	N	Y
		19/09/2018	29	30	32	34			N	Y	Y	Y
		20/09/2018	N/M	35	31	33			N	N	Y	Y

Note:
I/A = Inaudible
N/M = Not Measurable

Blast Monitoring

Blasting Results

Since 2006, there have been 844 blasts (until 31/10/2018) at TCM.

There has been no exceedance of criterion since the last meeting for ground vibration. The highest result obtained for blasting overpressure was **116 dB** at the project related property Tarrawonga recorded on 21/09/18 and the highest result for ground vibration was **1.32 mm/s** recorded at the Coomalgah station on 27/09/18.

Note the exceedance of overpressure recorded at the project related property Tarrawonga on September 21st was in accordance with conditions of:

- PA11_0047 sch3 cond14,
- EPL12365 cond.L5.1 and L5.2,
- ML1579 cond. 11b) and
- ML1693 cond. 10b).

"…*blast overpressure noise must not exceed 120dB and 115dB in more than 5 % of the total number of blast over 12 month at any occupied dwelling..".*

That exceedance was the first recorded above 115dB in **79** blasts over **12** months.

Table- 2: Max Peak Overpressure and Ground Pressure for the Quarter

Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Date	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Tarrawonga*	21/09/18	116	**N/A**	27/09/18	1.32	**N/A**
Coomalgah	10/12/18	106.2	**115**	21/09/18	1.08	**10**

**Not applicable according to EPL and PA11_0047 because project related property*

Air Quality Monitoring

Dust Deposition Results

Table 3 shows deposited dust gauge results over 12 months. All the monitors are located on project related land; as such compliance criteria (**4g/m^2/month)** do not apply. Although the weather conditions have been relatively dry, overall deposited dust levels are better than results recorded for December 2017, January and February 2018.

Table 3 – Deposited Dust Gauge Results [g/m^2/month]

MONTH	TEMPLEMORE (EB-4)	BOLLOL CREEK STN (EB-5)	AMBARDO (EB-6)	TARRAWONGA (EB-7)	THUIN (EB-8)	PINE GROVE (EB-9)	TARRAWONGA MINE (EB-10)	TARRAWONGA MINE (EB-11)	TARRAWONGA MINE (EB-14)	TARRAWONGA MINE (EB-15)	JERALONG NORTH (EB-16)
Oct-17	6.6	4.2	2.0	1.1	1.1	3.0	2.5	3.3	4.7	**8.6**	1.8
Nov-17	2.7	4.8	3.8	7.1	-	4.0	2.9	3.1	2.6	4.8	3.6
Dec-17	**24.6**	2.3	1.8	1.9	3.5	3.0	**13.5**	**7.5**	3.1	4.1	**71.3**
Jan-18	6.7	2.6	**10.5**	2.1	2.5	3.4	**14.4**	4.3	1.9	3.4	5.3
Feb-18	1.9	2.5	2.6	1.3	**13.3**	**6.2**	3.6	3.2	2	3.1	2.2
Mar-18	6.1	7.5	4.9	1.5	3.9	1.5	**7.8**	2.8	2.3	3.8	**9.4**
Apr-18	1.2	3.4	1.2	0.9	3.4	2.4	4.8	4.5	1.9	4	3.3
May-18	2.3	2.7	1	0.9	1.6	1.9	2	**6.9**	1.7	3.1	2.8
June-18	1.2	2.4	0.9	0.8	2.1	2.4	3.4	3.1	2.1	4.7	0.8
Jul-18	**18.4**	3.4	0.9	0.6	3.4	1.1	2.2	2	1.8	5	1.1
Aug-18	**5.19**	4.01	**11.55**	1.77	3.63	2.11	3.85	**5.08**	3.58	4.35	1.94
Sep-18	**5.9**	**9.8**	3.6	3.4	4.1	4.4	**5.6**	3.4	4.3	**6.1**	3.1
Oct-18	**5.9**	4.3	**11.1**	1.7	3.8	4.7	**10.8**	3.5	3	**5.4**	2.7
12 MONTH ROLLING AVERAGE	**6.8**	4.1	4.3	1.9	3.9	3.1	**6.0**	4.1	2.7	**4.7**	**8.4**

High Volume Air sampler (PM10) Results

The High Volume Air Sampler (HVAS) installed at Coomalgah property monitors level of Particle Matter under 10 micron (PM_{10}). It operates for 24hr every 6 days. Table 4 shows all the 24hr average values recorded for this quarter and the rolling Annual average are below the PA criteria. The highest level of PM10 was recorded on 10/10/18 with **38.5**µg/m^3.

Table- 4: HVAS PM10 24 hr average levels for the Quarter

Date	24hr averaged PM10 (µg/m³)	*Criterion 24hr average (µg/m³)*	Rolling Annual average (µg/m³)	*Criterion Annual Average (µg/m³)*	Comments
7/8/2018	31.8		20.83		No comments
13/08/2018	24		21.11		No comments
17/08/2018	13.7		21.23		No comments
23/08/2018	19.4		21.47		No comments
29/08/2018	8.9		21.48		No comments
4/9/2018	5.6		21.45		No comments
10/9/2018	18.6		21.68		No comments
16/09/2018	37.2	***50***	22.00	***30***	No comments
22/09/2018	31.2		22.25		No comments
28/09/2018	22.6		22.06		No comments
4/10/2018	19.7		22.05		No comments
10/10/2018	**38.5**		21.89		No comments
16/10/2018	33.2		22.31		No comments
22/10/2018	14.7		22.14		No comments
28/10/2018	32.9		22.28		No comments

According to the current Air Quality and Greenhouse gas Management Plan, the real time air quality unit (TEOM) installed at the "Flixton" property monitors PM_{10} levels in ambient air. It is an operational management tool and dust levels nearing or reaching the nominated criteria will trigger actions onsite to assess the source of dust and modify operations if it is determined to be related to Tarrawonga operations.

TEOM installed at Flixton property

Water Monitoring

Groundwater

Routine groundwater monitoring was undertaken in September 2018 and showed in **Table 5** (refer to graphs in *Appendix C).*

Table 5- Groundwater results Summary

Site	Date	SWL (mbgl)	pH (units)	Elect. Conduct (µS/cm)
MW1				
Thuin	June 2017	6.74	7.8	3290
	September 2017	6.80*	8.31	3370
	December 2017	6.73	7.7	3280
	February 2018	6.81	7.9	3460
	June 2018	6.91	7.9	3350
	September 2018	6.92	7.7	3430
MW2				
Thuin	June 2017	3.86	7.0	591
	September 2017	3.64	7.54	533
	December 2017	3.68	7	545
	February 2018	4.23	7.3	519
	June 2018	4.67	7.3	547
	September 2018	4.79	6.8	615
MW4				
Tarrawonga	June 2017	9.00	7.4	4370
	September 2017	8.9	7.82	4570
	December 2017	8.95	7.2	4440
	February 2018	9.08	7.4	4610
	June 2018	9.14	7.3	4430
	September 2018	9.34	6.9	4560
MW5				
Templemore	June 2017	2.54	7.9	1288
	September 2017	2.75	8.19	2640
	December 2017	2.78	7.7	2630
	February 2018	3.12	7.9	2320
	June 2018	3.31	7.9	1413
	September 2018	3.56	7.8	2040
MW6				
Nagero	June 2017	4.77	7.5	1660
	September 2017	4.57	8.15	1710
	December 2017	4.55	7.6	1738
	February 2018	4.76	7.8	1833
	June 2018	4.75	7.7	1828
	September 2018	4.84	8.0	2090
MW7				
Tarrawonga Mine	June 2017	104.92	No sample	No sample
	September 2017	104.47	No sample	No sample
	December 2017	104.53	No sample	No sample
	February 2018	104.97	No sample (Grey mud)	No sample
	June 2018	106.21	No sample (Grey mud)	No sample
	September 2018	104.65	No sample (Grey mud)	No sample
MW8				
Tarrawonga Mine	June 2017	13.07	Casing blocked	Casing blocked
	September 2017	13.04	Casing blocked	Casing blocked
	December 2017	13.12	Casing blocked	Casing blocked
	February 2018	12.52	Casing blocked	Casing blocked
	June 2018	13.33	Casing blocked	Casing blocked
	September 2018	13.48	Casing blocked	Casing blocked

(**SLR consultant (GM) advised that previously SWL was reported as mbtoc instead of mbgl)*

Surface Water

Since the last CCC meeting, one controlled discharge occurred on Sunday 21st October from SD17 (Authorised discharge Point) after approximately 60 mm rainfall over 5 days. That discharge was in accordance with EPL12365.

Estimated volume of water stored onsite as 23rd October was approximately 226.5 ML.

According to the BTM Complex strategy, water sharing opportunity is continuously discussed between the three mines and approximately 120ML of water was transferred from Maules Creeks Coal Mine to TCM via Boggabri Coal Mine. That water has been used for dust suppression and no water has been withdrawn from the pit since beginning of July.
TCM continue assessing options to source additional water in order to maintain the mine in operation in the long run.

Rehabilitation and Clearing

Rehabilitation

Operations and Environment departments work together to develop and implement a more efficient rehabilitation program. The aim is to enhance the quantity of areas rehabilitated.

In 2018, TCM planted approximately 2,400 trees in the designated rehabilitation areas including Eucalyptus albens, Eucalyptus blakelyi, Eucalyptus crebra, Eucalyptus melliodora, Eucalyptus pilligaensis, Eucalyptus populanea, Eucalyptus macrocarpa, Eucalyptus Melanophloia, Eucalyptus Crebra, Eucalyptus Dealbata and Eucalyptus Dwyeri.

Despite the dry weather conditions the survival rate has been relatively elevated and it is estimated that between 80 and 90% trees survived depending on the areas.

Clearing

Clearing cannot be conducted outside the February-April period however TCM has started discussions with agencies to request an authorisation to clear few trees along Goonbri road outside that clearing window.

Complaints

Since the last meeting, no complaint was lodged.

Environmental Management Plans

DPE have reviewed some Management plans updated in 2017 against the requirements of the Project Approval. The Environmental Management Strategy Plan and the Traffic Management Plan have recently been approved by the Department.

TCM have updated Management plans with the assistance of experts. Management Plans submitted at the end of August 2018 to agencies, CCC members (for feedbacks) and DPE (for approval) include:

Noise Management Plan

The Noise management Plan was revised by Todoroski Air Science (TAS).

Blast Management Plan

The Blast Management Plan was revised by TAS.

Air Quality Greenhouse Gas Management Plan

The Air Quality Management Plan was revised by TAS too.

Water Management Plan

The Water management plan was revised by WRM.

BTM Water Strategy

The Draft BTM Water Strategy was sent to CCC members and agencies for consultations in July 2018. Two BTM community groups have provided comments. BTM mines have met to discuss how to address those comments.

Annual and Compliance Reporting

Annual Review Report

TCM addressed DPE' comments and resubmitted the Annual Review (AR) 2017 report. That amended report was approved by DPE in September 2018. The AR 2017 is now available on Whitehaven Coal website.

Environmental Improvement and Initiatives

Dust Management

TCM have engaged the company Dust A Side to provide advice and solution to minimise potential fugitive dust generated by exposed surfaces such as haul roads. Since end of April, TCM have been monitoring the results and trying to improve the spraying and mixing techniques. The product used is totally organic, has no corrosive chloride compounds, and is environmentally friendly and readily biodegradable. Usage of that product on mine haul truck roads is ongoing.

Water Management

TCM have installed marked gauge boards in the authorised discharged dams. This initiative improves water management practices.

Noise Management

The portable noise monitor was relocated few hundreds meter away from farming/ grazing activity zone at Coolmalgah and a new fence was installed around it.

Rehabilitation

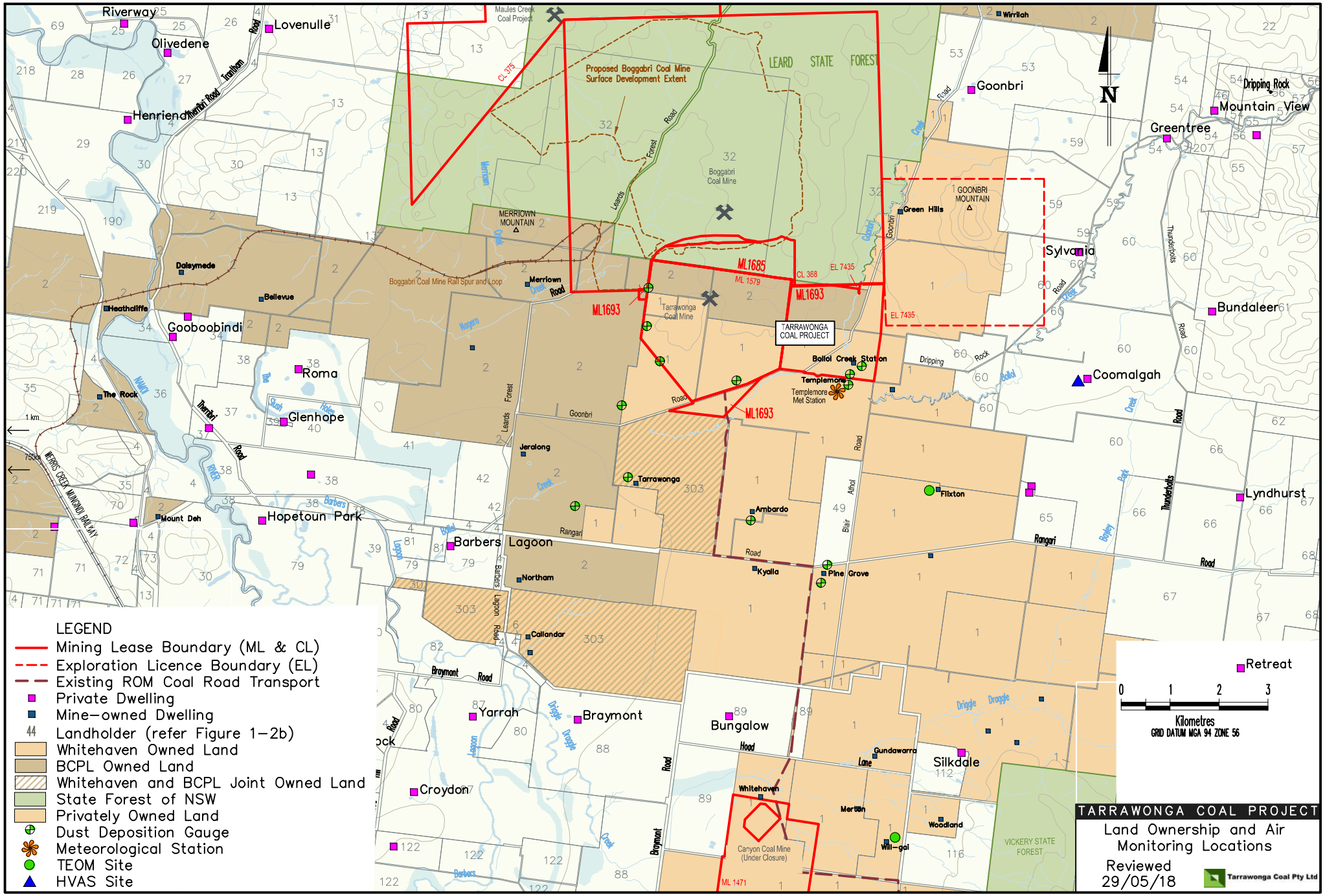
TCM have used an ATV to water the rehabilitated areas. That initiative improved the chance of survival.

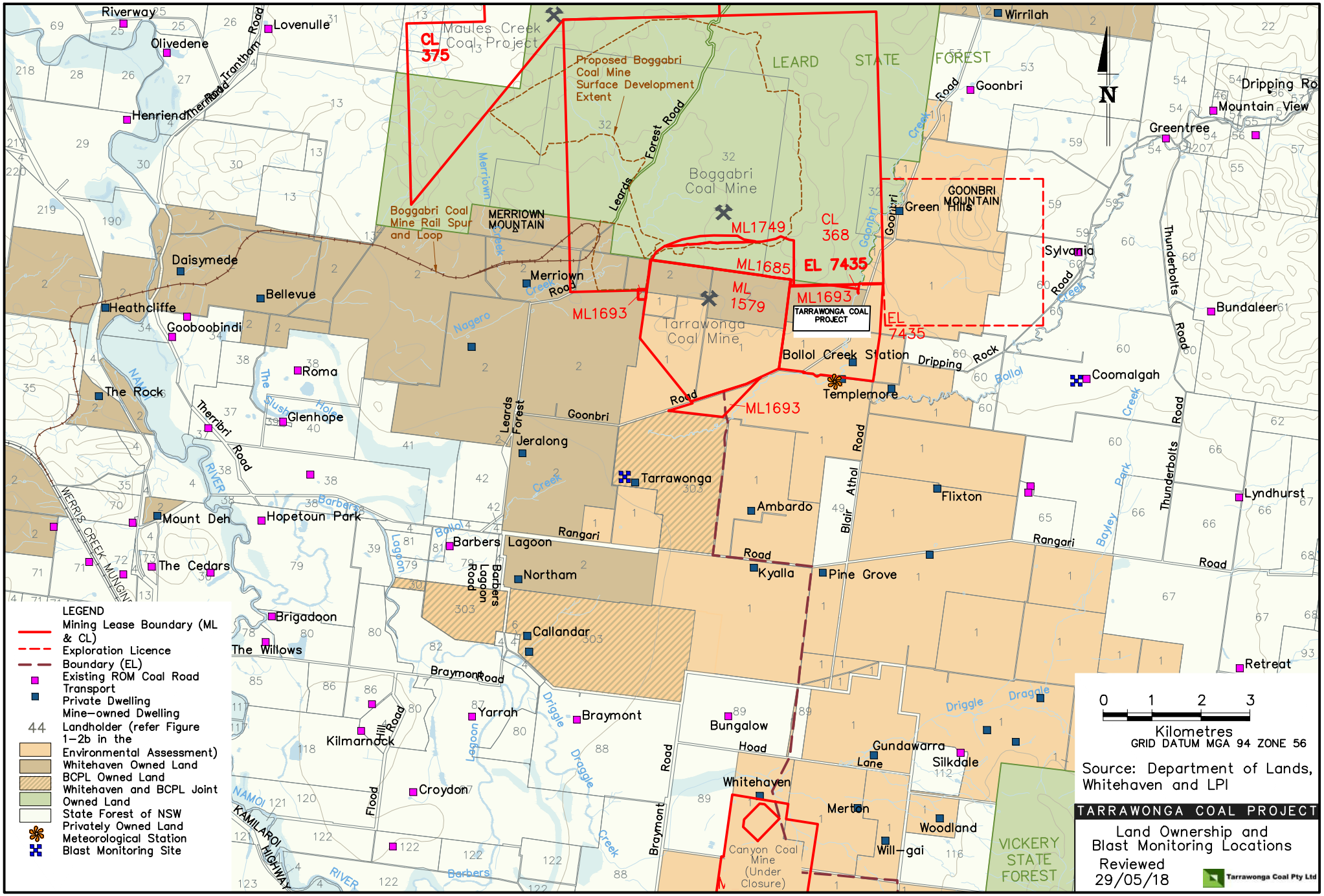
Air Quality

Two Portable dust (PM10) monitors have been ordered to upgrade the air monitoring network. They will be delivered and installed before the end of this year.

Portable Dust monitor ordered by TCM

Appendix A


LEGEND
Mining Lease Boundary (ML & CL)
Exploration Licence Boundary (EL)
Existing ROM Coal Road Transport
Private Dwelling
Mine-owned Dwelling
44 Landholder (refer Figure 1-2b)
Whitehaven Owned Land
BCPL Owned Land
Whitehaven and BCPL Joint Owned Land
State Forest of NSW
Privately Owned Land
Dust Deposition Gauge
Meteorological Station
TEOM Site
HVAS Site
Proposed Boggabri Coal Mine Surface Development Extent
LEARD STATE FOREST
Maules Creek Coal Project
CL 375
Boggabri Coal Mine
Boggabri Coal Mine Rail Spur and Loop
MERRIOWN MOUNTAIN
GOONBRI MOUNTAIN
ML1685
ML 1579
CL 368
EL 7435
ML1693
Tarrawonga Coal Mine
TARRAWONGA COAL PROJECT
Templemore Met Station
Canyon Coal Mine (Under Closure)
ML 1471
VICKERY STATE FOREST
Riverway
Olivedene
Lovenulle
Henriendi
Daisymede
Bellevue
Heathcliffe
Gooboobindi
Roma
The Rock
Glenhope
Mount Deh
Hopetoun Park
Barbers Lagoon
Northam
Callandar
Yarrah
Braymont
Croydon
Bungalow
Silkdale
Whitehaven
Merton
Woodland
Will-gai
Gundawarra
Hood Lane
Goonbri
Green Hills
Wirrilah
Dripping Rock
Mountain View
Greentree
Sylvania
Bundaleer
Coomalgah
Lyndhurst
Templemore
Bollol Creek Station
Jeralong
Tarrawonga
Ambardo
Kyalla
Pine Grove
Flixton
Athol
Blair
Retreat
0 1 2 3
Kilometres
GRID DATUM WGA 94 ZONE 56
TARRAWONGA COAL PROJECT
Land Ownership and Air Monitoring Locations
Reviewed 29/05/18
Tarrawonga Coal Pty Ltd



Source: Department of Lands, Whitehaven and LPI

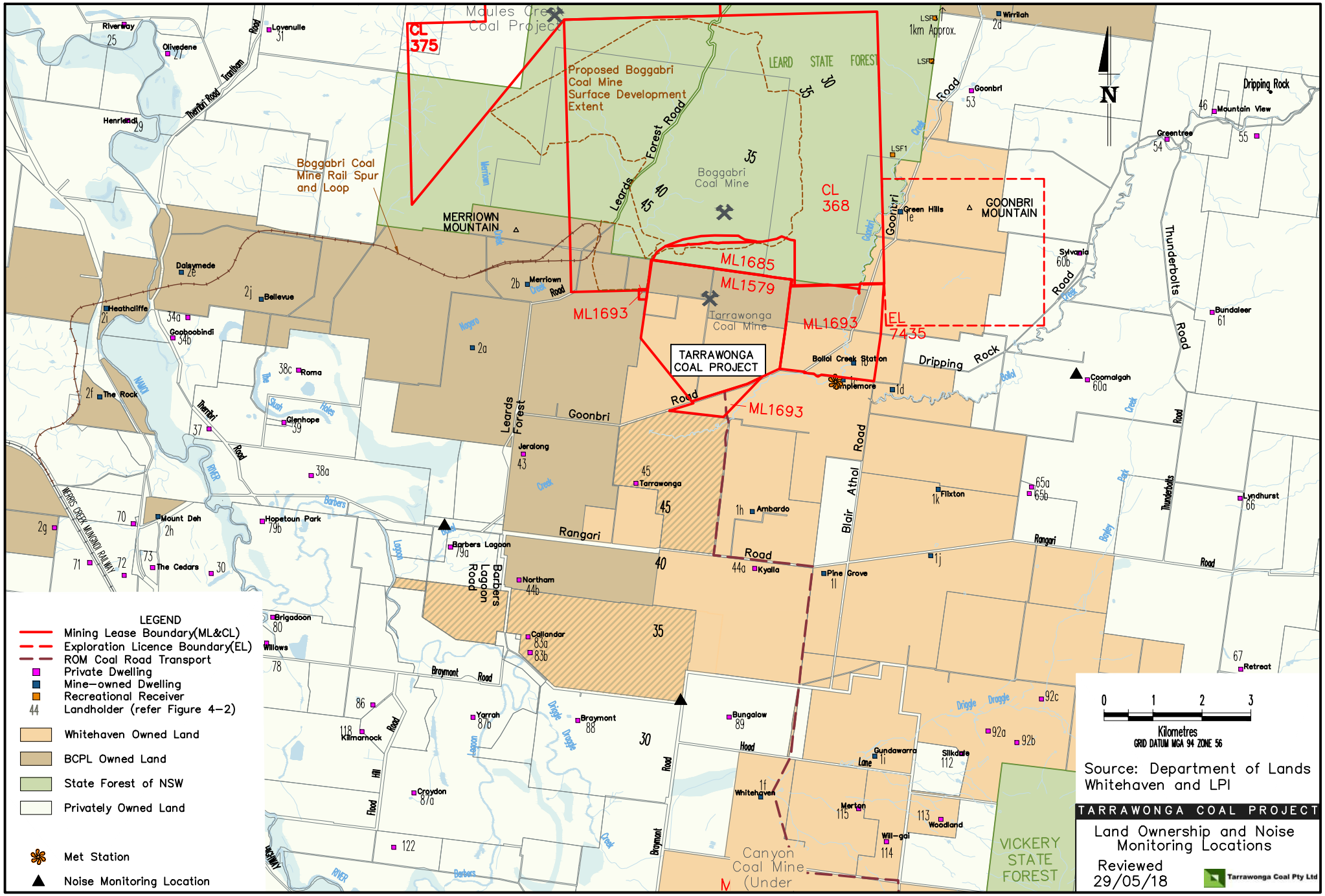
TARRAWONGA COAL PROJECT

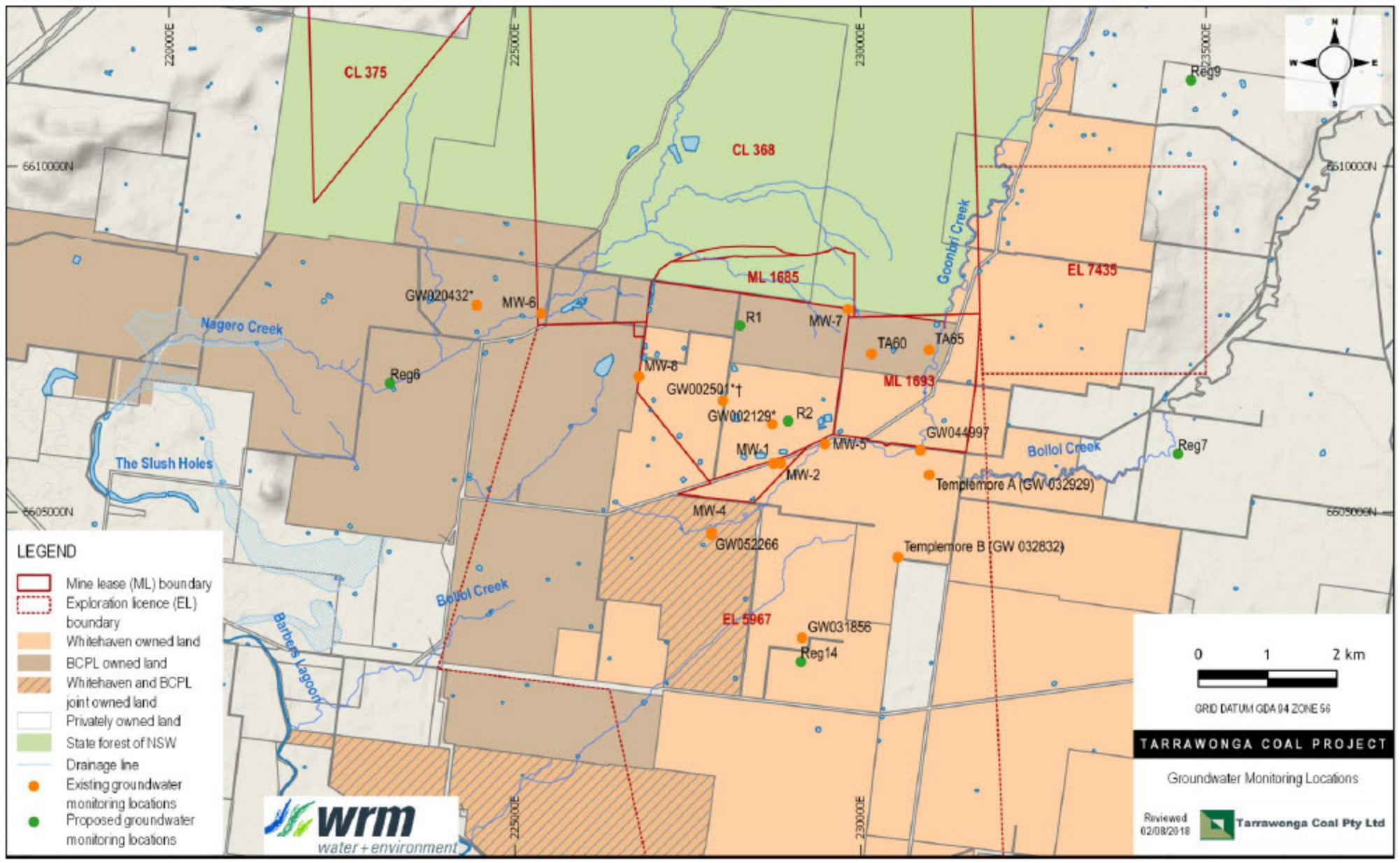
Land Ownership and Blast Monitoring Locations

Reviewed 29/05/18

Tarrawonga Coal Pty Ltd

WHC-10-04 TMP_BM


CL 375
Proposed Boggabri Coal Mine Surface Development Extent
LEARD STATE FOREST
Boggabri Coal Mine Rail Spur and Loop
Boggabri Coal Mine
CL 368
MERRIOWN MOUNTAIN
GOONBRI MOUNTAIN
ML1685
ML1579
ML1693
Tarrawonga Coal Mine
LEL 7435
TARRAWONGA COAL PROJECT
Leards Forest Road
Goonbri Road
Dripping Rock Road
Thunderbolts Road
Blair Athol Road
Rangari Road
Barbers Lagoon Road
Braymont Road
Canyon Coal Mine (Under
VICKERY STATE FOREST
LEGEND
Mining Lease Boundary(ML&CL)
Exploration Licence Boundary(EL)
ROM Coal Road Transport
Private Dwelling
Mine-owned Dwelling
Recreational Receiver
Landholder (refer Figure 4-2)
Whitehaven Owned Land
BCPL Owned Land
State Forest of NSW
Privately Owned Land
Met Station
Noise Monitoring Location
N
0 1 2 3
Kilometres
GRID DATUM MGA 94 ZONE 56
Source: Department of Lands Whitehaven and LPI
TARRAWONGA COAL PROJECT
Land Ownership and Noise Monitoring Locations
Reviewed 29/05/18
Tarrawonga Coal Pty Ltd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CL 368
ML 1685
ML 1693
EL 7435
EL 5967
Goonbri Creek
Nagero Creek
The Slush Holes
Bollol Creek
Barbers Lagoon
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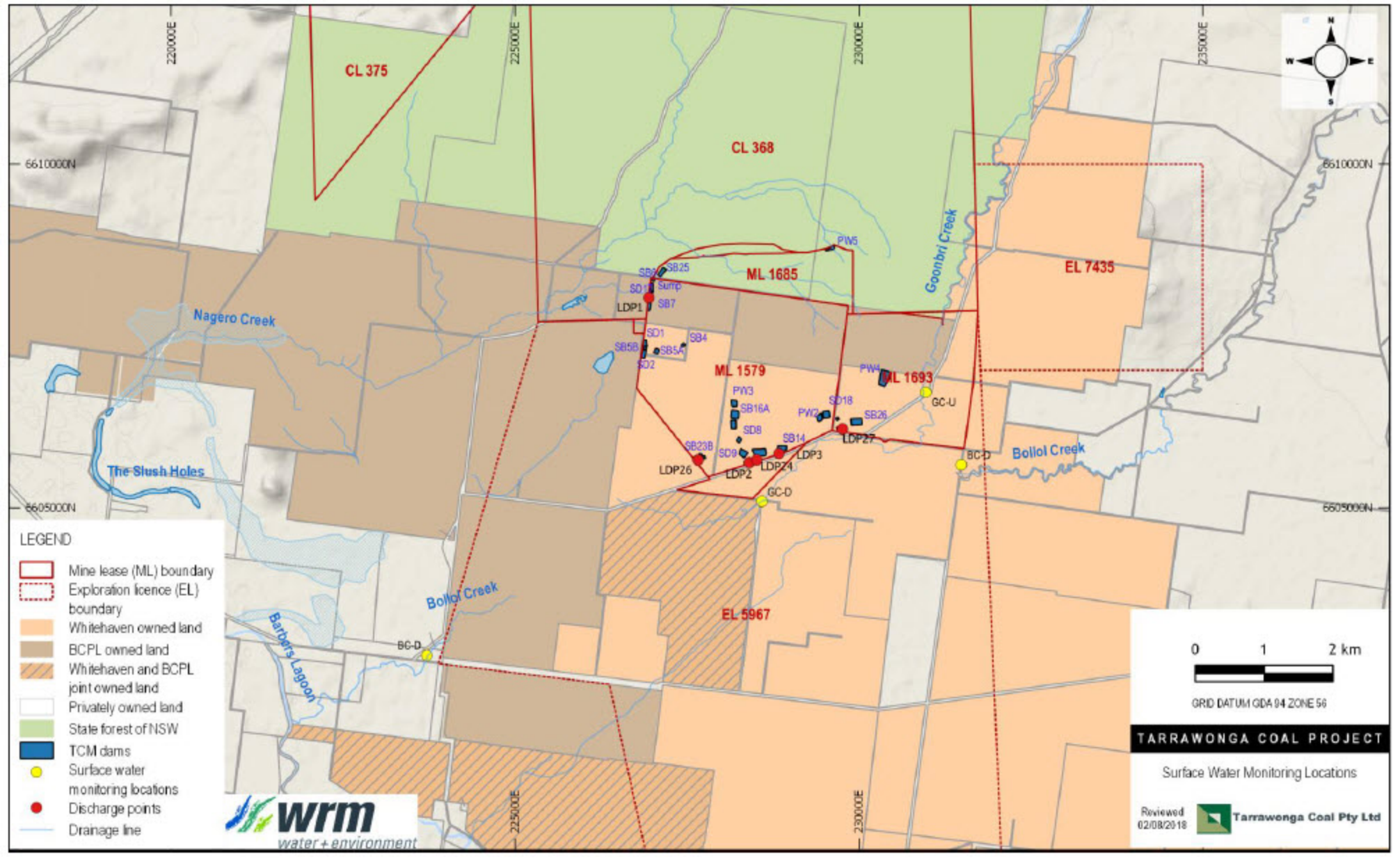
MW-6
R1
MW-7
TA60
TA65
MW-8
GW002501*†
GW002129*
R2
MW-1
MW-5
GW044997
MW-2
Templemore A (GW 032929)
MW-4
GW052266
Templemore B (GW 032832)
GW031856
Reg14
Reg6
Reg7
Reg9
6610000N
6605000N
220000E
225000E
230000E
235000E
LEGEND
Mine lease (ML) boundary
Exploration licence (EL) boundary
Whitehaven owned land
BCPL owned land
Whitehaven and BCPL joint owned land
Privately owned land
State forest of NSW
Drainage line
Existing groundwater monitoring locations
Proposed groundwater monitoring locations
wrm water + environment
0 1 2 km
GRID DATUM GDA 94 ZONE 56
TARRAWONGA COAL PROJECT
Groundwater Monitoring Locations
Reviewed 02/08/2018
Tarrawonga Coal Pty Ltd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CL 368
ML 1685
ML 1579
ML 1693
EL 7435
EL 5967
Nagero Creek
Goonbri Creek
Bollol Creek
Barbers Lagoon
The Slush Holes
PW5
PW4
PW3
PW2
SB25
SB7
SB5A
SB5B
SB4
SB16A
SB18
SB26
SB14
SB23B
SD1
SD2
SD8
SD9
SD18
Sump
LDP1
LDP2
LDP3
LDP4
LDP26
LDP27
GC-U
GC-D
BC-D
220000E
225000E
230000E
235000E
6610000N
6605000N
LEGEND
Mine lease (ML) boundary
Exploration licence (EL) boundary
Whitehaven owned land
BCPL owned land
Whitehaven and BCPL joint owned land
Privately owned land
State forest of NSW
TCM dams
Surface water monitoring locations
Discharge points
Drainage line
wrm water + environment
0 1 2 km
GRID DATUM GDA 94 ZONE 56
TARRAWONGA COAL PROJECT
Surface Water Monitoring Locations
Reviewed 02/08/2018
Tarrawonga Coal Pty Ltd

Appendix B

WHITEHAVEN COAL OPERATIONAL NOISE MONITORING

Tarrawonga Coal Mine
Quarter Ending September 2018

Prepared for:

Whitehaven Coal Mining Limited
10409 Kamilaroi Hwy
GUNNEDAH NSW 2380

SLR Ref: 610.18063-R02
Version No: -v1.0
October 2018

EXECUTIVE SUMMARY

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Whitehaven Coal Mining Limited (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
610.18063-R02	16 October 2018	Jason Qian	Mark Russell	Mark Russell

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DOCUMENT REFERENCES

TABLES

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FIGURES

APPENDICES

1 Introduction

Whitehaven Coal Limited (Whitehaven) has commissioned SLR Consulting Australia Pty Ltd (SLR) to conduct operational noise monitoring for Tarrawonga Coal Mine (TCM) located approximately 16 km east of Boggabri, New South Wales (NSW) in accordance with the approved Tarrawonga Noise Management Plan (NMP) dated December 2014, the Whitehaven Project Approval (PA 11_0047 – May 2017) and the Environment Protection Licence (EPL) 12365 dated 27/06/2017 (EPL 12365).

The objectives of the noise monitoring programme for this operating period were as follows:

- Conduct operator attended noise surveys at three (3) locations (79a, 89 and 60a) surrounding the mine during the day, evening and night-time periods.
- Quantify all sources of noise within each of the attended noise surveys, including their measured and/or estimated contribution and maximum level of individual noise sources.
- Assess the noise emissions of TCM and determine compliance with respect to the limits contained in Section 2 of the NMP, Schedule 3 - Condition 3 & 6 of the PA and Condition L4.1 of the EPL.

The following report uses specialist acoustic terminology. An explanation of common terms is provided in **Appendix A**.

2 Performance Assessment and Discussion

The following provides a summary of the attended noise measurements undertaken at each monitoring location. Further details are provided for each location in **Section 5** of this report.

Table 1 Performance Assessment – Operations

EPL ID	Location	Date	Tarrawonga Coal Mine Contribution dBA				Criteria	Measurement Periods	Weather Compliant			Compliant
			LAeq(15minute) Day	LAeq(15minute) Evening	LAeq(15minute) Night	LA1(1minute) Night			Day	Eve	Night	
79a	Barbers Lagoon	17/09/2018	I/A	N/M	29	31	Day, Evening and Night – 35 dBA LAeq(15minute) Night – 45 dBA LA1(1minute) Cumulative Day, Evening, Night 40 dBA LAeq(15minute)	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	N	Y	Y	Y
		18/09/2018	I/A	26	30	32			N	Y	N	Y
		19/09/2018	I/A	N/M	I/A	I/A			N	N	Y	Y
		20/09/2018	I/A	I/A	28	29			N	Y	Y	Y
89	Bungalow	17/09/2018	I/A	I/A	27	32			N	Y	Y	Y
		18/09/2018	28	I/A	29	I/A			Y	N	N	Y
		19/09/2018	I/A	I/A	I/A	I/A			N	Y	Y	Y
		20/09/2018	I/A	I/A	I/A	I/A			N	Y	Y	Y
60a	Coomalgah/ Matong	17/09/2018	27	I/A	I/A	I/A			Y	Y	Y	Y
		18/09/2018	29	I/A	I/A	I/A			N	N	N	Y
		19/09/2018	29	30	32	34			N	Y	Y	Y
		20/09/2018	N/M	35	31	33			N	N	Y	Y

Note:

I/A = Inaudible

N/M = Not Measurable

3 Noise Criteria

3.1 Project Approval, EPL and NMP

Noise monitoring at TCM was conducted in accordance with the EPL 12365, the PA 11_0047 requirements and the NMP. The site specific EPL and PA noise limits are summarised in Section 2 of the NMP and are reproduced in **Table 2**.

Table 2 Project Approval and EPL Noise Criteria- dBA (re 20 µPa)

Location	Day	Cumulative Criteria1	Evening	Night	
	$L_{Aeq(15minute)}$	$L_{Aeq(15minute)}$	$L_{Aeq(15minute)}$	$L_{Aeq(15minute)}$	$L_{A1(1minute)}$
All Privately owned Residences	35 dBA	40 dBA	35 dBA	35 dBA	45 dBA

Note 1. Cumulative noise criteria to include noise generated by other mines

3.1.1 Non-compliances & Exemptions

In accordance with Section 11.1.3 of the Noise Policy for Industry (NPfI) a development is deemed to be in non-compliance with a noise consent or licence condition if the monitored noise level is more than 2 dB above the statutory noise limit specified in the consent or licence. This may occur for two reasons:

- The noise from the TCM is excessive, in which case TCM will be not complying with its consent or licence condition.
- The noise was increased by extreme, nonstandard weather effects—in which case the TCM is not considered to be in non-compliance with its consent or licence condition.

In this latter case, further monitoring at a later date is required to determine compliance under "normal" meteorological conditions.

The NPfI states in Section 9.2 that *"it is not practicable to meet the noise limit under all inversion events; hence exceedances under extreme temperature inversions are not considered to be a non-compliance with consent or licence conditions."*

TCM defines non standard weather effects as:

- Wind speeds greater than 3 m/s at 10m above ground level; or
- Stability category F temperature inversion conditions and wind speeds greater than 2 m/s at 10 metres above ground level; or
- Stability category G temperature inversion conditions

3.1.2 Attended Monitoring

TCM will be undertaking Attended Noise monitoring on a quarterly basis at residential areas. The attended monitoring will take place at the following locations & can be found in **Figure 1**.

- Barbers Lagoon – 6412 Rangari Road
- Bungalow – 1216 Braymont Road
- Coolmagah/Matong – Eastern boundary

This monitoring will involve Day, Evening and Night Attended monitoring to determine the $L_{Aeq(15minute)}$. During attended monitoring, the following is to be monitored:

- Noise levels from TCM at residential areas.
- wind speed and direction.
- Sky cloud cover, using direct observation for night measurements.

4 Operational Noise Monitoring Methodology

4.1 General Requirements

All acoustic instrumentation employed throughout the monitoring programme has been designed to comply with the requirements of AS IEC 61672.1 – 2004 *Electroacoustics—Sound level meters – Specifications*, AS IEC 61672.2-2004, AS IEC 61672.3-2004 and carried current NATA or manufacturer calibration certificates. Instrument calibration was checked before and after each measurement survey, with the variation in calibrated levels not exceeding ±0.5 dBA. Calibration Sheets are provided in **Appendix B**.

4.2 Methodology - Operator Attended Noise Monitoring

Noise monitoring was conducted in accordance with the current Tarrawonga NMP, and Conditions M7.1 and M7.4 of the EPL.

Operator attended noise measurements were conducted during the day, evening and night-time periods for a minimum of 1.5 hours during the day; 30 minutes during the evening and 1 hour during the night at each of the three (3) nominated noise monitoring locations representing the most affected receiver locations, listed in **Table 3** and shown in **Figure 1**. During the operator attended noise measurements, the character and relative contribution of ambient noise sources and mine contributions were determined.

Table 3 Noise Monitoring Locations

Monitoring Location	Receiver Type	Address	Monitoring Location - MGA Zone 56	
			Easting (m)	Northing (m)
79a	Residence	Barbers Lagoon – 6145 Rangari Road	222934	6602484
89	Residence	Bungalow – 1216 Braymont Road	227596	6599265
60a	Residence	Matong/Coomalgah – Eastern boundary	233182	6606083

The objective of the operator attended noise monitoring was to measure the maximum (L_{Amax}) and the $L_{Aeq(15minute)}$ noise level contribution from the TCM at the nearest potentially affected receptors in order to determine the noise contribution of operational activities associated with TCM operations over each 15 minute measurement period. In addition, the operator quantifies and characterises the overall levels of ambient noise in the area (i.e. L_{Amax}, L_{A1}, L_{A10}, L_{A90}, L_{Aeq} and L_{Amin}) over the 15 minute measurement interval.

Operator attended noise measurements were conducted using a one-third octave integrating Brüel & Kjær Type 2250 Sound Level Meters (SLM) and a one-third octave integrating Brüel & Kjær Type 2270 SLM (serial numbers 3011830 & 3008204 respectively).

Table 4 presents a summary of which days of the week the quarterly monitoring was conducted, in accordance with condition M7.5 of EPL 12365.

Table 4 Days of the Week Quarterly Monitoring was Conducted, Year 2018

Period	Day of the Week					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
Day	17/09/2018	18/09/2018	19/09/2018	20/09/2018	-	-
Evening	17/09/2018	18/09/2018	19/09/2018	20/09/2018	-	-
Night[1]	17/09/2018	18/09/2018	19/09/2018	20/09/2018	-	-

1. Taken to mean the night time period from 10:00 pm on the stated day to 7:00 am the following day.

Figure 1 Tarrawonga Coal Mine Attended Noise Monitoring Locations

5 Results and Discussion

5.1 Results of Operator Attended Monitoring

Results of the operator attended noise surveys at Barbers Lagoon, Bungalow and Matong/Coomalgah are provided in **Table 5** to **Table 16.**

Ambient noise levels presented include all noise sources such as transport (roads, boats and aircraft), fauna (insects, frogs, birds and bats), the natural environment (wind in trees), domestic noises, other industrial operations as well as TCM noise emissions.

Weather data during the monitoring period has been obtained from the weather station located on the TCM site and observed conditions.

The tables also provide the following information:

- Date and start time, operator and equipment details.
- Monitoring location.
- Wind velocity (m/s) and temperature (°C) at the weather station.
- Typical maximum (L_{Amax}) and contributed $L_{Aeq(15minute)}$ noise levels.

5.1.1 Operator Attended Noise Survey Results – Barbers Lagoon (79a)

Results of the operator attended noise surveys at R1 are provided in **Table 5** to **Table 8.** Monitoring location 79a represents residential receptors located to the southwest of the site in Barbers Lagoon.

Table 5 Operator Attended Noise Survey Results – 79a – Barbers Lagoon (Day 1)

Period Date/Start Time Weather SLM Details	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						TCM Contribution (dB)	Description
				LAmax	LA1	LA10	LA90	LAeq	LAmin		
Day 17/09/2018 8:45 4-5 m/s SE 14 °C 3008204	35 dBA LAeq(15minute)	1	C	68	56	54	45	51	41	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Residential activity 61-80 Birds 48-67 Wind 45-48 Animals 49-58
		2	D	79	64	54	44	53	37	I/A	
		3	C	69	62	52	41	50	36	I/A	
		4	C	71	61	53	40	50	33	I/A	
		5	D	67	55	47	38	45	33	I/A	
		6	D	80	64	53	38	53	30	I/A	
Evening 17/09/2018 20:55 2 m/s N 14 °C 3011822	35 dBA LAeq(15minute)	1	E	51	44	37	25	33	24	I/A	**Site Related Noise Events:** Not Measurable **Other Noise Events:** Road traffic 38-51 Animals 38-41 Birds 39
		2	E	51	41	33	24	30	22	N/M	
Night 17/09/2018 23:30 Calm 10 °C 3011822	35 dBA LAeq(15minute) 45 dBA LA1(1minute	1	D	43	37	32	27	30	24	27	**Site Related Noise Events:** General site emissions 27-30 **Other Noise Events:** Road Traffic 37-47 Animals 32-38 Dog 42 Insects 27
		2	E	37	34	32	29	30	27	28	
		3	F	42	33	32	28	30	26	29	
		4	F	47	41	33	28	32	26	27	

N/M = Not Measurable

I/A = Inaudible

Table 6 Operator Attended Noise Survey Results – 79a – Barbers Lagoon (Day 2)

Period Date/Start Time Weather SLM Details	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						TCM Contribution	Description
				LAmax	LA1	LA10	LA90	LAeq	LAmin		
Day 18/09/2018 11:39 2-4 m/s NW 23 °C 3011822	35 dBA LAeq(15minute)	1	B	76	69	54	45	56	33	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Animals 38-55 Road traffic 40-48 Wind related noise 45-47 Birds 60-72
		2	A	60	53	50	41	47	36	I/A	
		3	A	67	50	46	40	44	34	I/A	
		4	A	72	59	45	38	51	33	I/A	
		5	A	68	56	52	39	49	31	I/A	
		6	A	66	57	53	40	49	37	I/A	
Evening 18/09/2018 19:39 2 m/s N 22 °C 3008204	35 dBA LAeq(15minute)	1	D	55	34	30	25	28	24	25	**Site Related Noise Events:** General site emissions 25-31 **Other Noise Events:** Animals 32-55 Wind 30-33 Car on nearby property 36
		2	E	36	35	32	28	30	25	26	
Night 19/09/2018 00:38 2-4 m/s N 22 °C 3008204	35 dBA LAeq(15minute) 45 dBA LA1(1minute	1	D	49	47	41	26	37	23	29	**Site Related Noise Events:** General site emissions 26-33 **Other Noise Events:** Wind related noise 35-39 Animals 30-35
		2	E	47	35	31	26	29	23	30	
		3	F	38	34	31	28	30	25	30	
		4	F	41	34	30	27	29	25	28	

N/M = Not Measurable

I/A = Inaudible

Table 7 Operator Attended Noise Survey Results – 79a – Barbers Lagoon (Day 3)

Period Date/Start Time Weather SLM Details	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						TCM Contribution (dB)	Description
				LAmax	LA1	LA10	LA90	LAeq	LAmin		
Day 19/09/2018 11:09 6-8 m/s NW 24 °C 3008204	35 dBA LAeq(15minute)	1	D	70	69	65	56	62	53	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Wind related noise 51-75 Birds 71 Sheep 50-55
		2	D	72	69	67	56	63	51	I/A	
		3	C	70	69	66	53	62	51	I/A	
		4	C	75	72	67	56	63	51	I/A	
		5	D	75	71	68	58	64	53	I/A	
		6	D	73	70	67	57	64	53	I/A	
Evening 19/09/2018 20:12 3-4 m/s NW 20 °C 3011822	35 dBA LAeq(15minute)	1	D	39	31	28	24	26	21	N/M	**Site Related Noise Events:** Not measurable **Other Noise Events:** Non-relevant noise 38-40 Light wind 24-26 Animals 26
		2	D	40	33	30	21	28	20	I/A	
Night 19/09/2018 23:29 Calm 15 °C 3011822	35 dBA LAeq(15minute) 45 dBA LA1(1minute	1	F	60	42	33	29	33	28	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Dogs 32-45 Animals 42 Non-relevant noise 40-73
		2	F	68	35	22	19	32	19	I/A	
		3	F	67	37	23	19	27	19	I/A	
		4	F	73	64	30	19	46	19	I/A	

N/M = Not Measurable

I/A = Inaudible

Table 8 Operator Attended Noise Survey Results – 79a – Barbers Lagoon (Day 4)

Period Date/Start Time Weather SLM Details	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						TCM Contribution (dB)	Description
				LAmax	LA1	LA10	LA90	LAeq	LAmin		
Day 20/09/2018 13:42 5-7 m/s SW 17 °C 3011822	35 dBA LAeq(15minute)	1	D	69	63	53	36	51	32	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Animals 38-47 Birds 47-75 Wind related noise 48-52 Resident pass-by 60-69
		2	D	62	59	53	38	49	30	I/A	
		3	C	75	57	51	37	48	31	I/A	
		4	D	68	58	55	40	50	34	I/A	
		5	D	72	61	55	40	51	29	I/A	
		6	C	67	55	51	35	47	33	I/A	
Evening 20/09/2018 19:22 1 m/s SW 14 °C 3008204	35 dBA LAeq(15minute)	1	E	48	34	27	19	24	18	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Animals 36-41 Road traffic 30-35 Residential 37-41 Non-relevant noise 44-53
		2	E	53	30	25	20	25	18	I/A	
Night 20/09/2018 00:35 1 m/s N 8 °C 3008204	35 dBA LAeq(15minute) 45 dBA LA1(1minute)	1	E	50	43	31	20	30	18	N/M	**Site Related Noise Events:** General site emissions 25-33 **Other Noise Events:** Animals 32-50 Bird 41
		2	F	41	37	29	21	27	19	25	
		3	F	37	21	33	29	25	27	26	
		4	E	49	34	30	26	29	24	28	

N/M = Not Measurable

I/A = Inaudible

5.1.2 Operator Attended Noise Survey Results – Bungalow (89)

Results of the operator attended noise surveys at R1 are provided in **Table 9** to **Table 12.** Monitoring location 89 represents residential receptors located to the south of the site in Bungalow.

Table 9 Operator Attended Noise Survey Results – 89 – Bungalow (Day 1)

Period Date/Start Time Weather SLM Details	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						TCM Contribution	Description
				LAmax	LA1	LA10	LA90	LAeq	LAmin		
Day 17/09/2018 10:53 2-4 m/s S 19 °C 3008204	35 dBA LAeq(15minute)	1	C	61	54	38	24	41	22	I/A	**Site related noise:** Inaudible Other noise events Birds 58-73 Wind 30-35 Local road traffic 60-69
		2	B	63	55	37	25	41	22	I/A	
		3	A	63	52	41	23	40	21	I/A	
		4	A	69	53	35	24	45	21	I/A	
		5	A	62	49	38	22	36	20	I/A	
		6	A	73	57	42	23	46	21	I/A	
Evening 17/09/2018 20:39 1-2 m/s N 14 °C 3011822	35 dBA LAeq(15minute)	1	E	41	34	30	24	27	22	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Distant road traffic 30-36 Non-relevant noise 38-41 Other mines 28
		2	E	39	32	29	25	27	24	I/A	
Night 18/09/2018 00:52 0-2 m/s NE 10 °C 3011822	35 dBA LAeq(15minute) 45 dBA LA1(1minute)	1	D	56	39	31	26	31	24	27	**Site Related Noise Events:** General site emissions 26-27 **Other Noise Events:** Non-relevant noise 32-56 Wind related noise 38-51
		2	E	51	40	35	26	36	24	27	
		3	D	49	32	29	24	27	22	27	
		4	E	48	33	30	26	28	24	26	

N/M = Not Measurable, I/A = Inaudible

Table 10 Operator Attended Noise Survey Results – 89 – Bungalow (Day 2)

Period Date/Start Time Weather SLM Details	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						TCM Contribution	Description
				LAmax	LA1	LA10	LA90	LAeq	LAmin		
Day 18/09/2018 09:47 1-3 m/s SW 18 °C 3011822	35 dBA LAeq(15minute)	1	D	68	50	38	30	40	28	28	**Site Related Noise Events:** General site activity 27-29 **Other Noise Events:** Birds 40-68 Vehicle pass-by 58-72 Aeroplane 36-40
		2	D	72	56	45	29	44	27	N/M	
		3	B	64	52	43	29	40	26	N/M	
		4	A	60	50	40	25	38	23	N/M	
		5	A	60	53	47	28	42	24	I/A	
		6	A	58	55	52	31	47	25	I/A	
Evening 18/09/2018 20:30 2-3 m/s N 22 °C 3008204	35 dBA LAeq(15minute)	1	F	46	38	37	32	35	29	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Wind 30-36 Distant road traffic 35-41 Animals 37-41
		2	F	77	66	39	34	51	31	I/A	
Night 18/09/2018 23:20 3-4 m/s N 22 °C 3008204	35 dBA LAeq(15minute) 45 dBA LA1(1minute)	1	D	47	43	40	36	38	34	N/M	**Site Related Noise Events:** General site emissions 27-30 **Other Noise Events:** Distant road traffic 37-41 Animals 32 Wind 39-42
		2	D	47	44	42	35	40	33	I/A	
		3	D	45	39	36	31	34	29	29	
		4	D	40	34	33	28	31	27	28	

N/M = Not Measurable

I/A = Inaudible

Table 11 Operator Attended Noise Survey Results – 89 – Bungalow (Day 3)

Period Date/Start Time Weather SLM Details	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						TCM Contribution	Description
				LAmax	LA1	LA10	LA90	LAeq	LAmin		
Day 19/09/2018 11:25 4-6 m/s NW 25 °C 3008204	35 dBA LAeq(15minute)	1	D	73	70	67	57	64	53	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Wind related noise 51-65 Vehicle pass-by 56-73
		2	C	65	63	61	50	57	46	I/A	
		3	D	67	62	59	50	56	47	I/A	
		4	D	61	59	56	45	52	42	I/A	
		5	D	64	60	58	49	55	45	I/A	
		6	D	65	62	59	49	65	55	I/A	
Evening 19/09/2018 20:58 Calm 19 °C 3011822	35 dBA LAeq(15minute)	1	D	75	35	33	28	42	24	I/A	**Site Related Noise Events:** Not Measurable **Other Noise Events:** Light wind 28-33 Distant traffic 31 Non-relevant noise 40-75
		2	D	40	33	30	21	28	20	I/A	
Night 20/09/2018 00:47 1-2 m/s SW 14 °C 3011822	35 dBA LAeq(15minute) 45 dBA LA1(1minute)	1	D	52	48	31	29	31	24	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Other mines 28 Non-relevant noise 39-52 Birds 31-44
		2	E	48	33	31	29	30	24	I/A	
		3	D	50	39	34	31	32	30	I/A	
		4	E	48	31	30	27	29	25	I/A	

N/M = Not Measurable

I/A = Inaudible

Table 12 Operator Attended Noise Survey Results – 89 – Bungalow (Day 4)

Period Date/Start Time Weather SLM Details	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						TCM Contribution	Description
				LAmax	LA1	LA10	LA90	LAeq	LAmin		
Day 20/09/2018 09:35 3-4 m/s SW 15 °C 3011822	35 dBA LAeq(15minute)	1	C	76	51	42	28	45	24	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Birds 50-73 Wind related noise 30-54 Vehicle pass-by 60-76 Aeroplane 38-44
		2	A	67	53	45	28	42	24	I/A	
		3	C	58	50	44	32	49	26	I/A	
		4	B	62	56	50	32	46	27	I/A	
		5	A	69	57	52	35	48	27	I/A	
		6	A	73	53	48	31	46	25	I/A	
Evening 20/09/2018 20:55 1 m/s N 13 °C 3008204	35 dBA LAeq(15minute)	1	F	44	37	32	27	30	26	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Distant Road Traffic 30-38 Wind 35-44
		2	F	42	32	28	25	26	23	I/A	
Night 20/09/2018 23:19 Calm 9 °C 3008204	35 dBA LAeq(15minute) 45 dBA LA1(1minute)	1	E	49	35	22	18	23	17	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Dogs 34-36 Distant Vehicle 28-31 Non-relevant noise 38-49
		2	D	41	30	24	18	22	18	I/A	
		3	F	41	26	21	18	20	17	I/A	
		4	F	37	22	20	18	19	17	I/A	

N/M = Not Measurable

I/A = Inaudible

5.1.3 Operator Attended Noise Survey Results – Matong/Coomalgah (60a)

Results of the operator attended noise surveys at R1 are provided in **Table 13** to **Table 16.** Monitoring location 60a represents residential receptors located to the east of the site at the Matong/Coomalgah boundary.

Table 13 Operator Attended Noise Survey Results – 60a – Matong/Coolmalgah (Day 1)

Period Date/Start Time Weather SLM Details	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						TCM Contribution	Description
				LAmax	LA1	LA10	LA90	LAeq	LAmin		
Day 17/09/2018 12:53 1-3 m/s S 12 °C 3008204	35 dBA LAeq(15minute)	1	A	58	47	36	32	35	21	25	**Site Related Noise Events:** Truck noise 23-28 General activity 24-27 **Other Noise Events:** Vehicle pass-by 56-75 Wind 28-33 Birds 42-55
		2	A	75	58	39	23	49	21	24	
		3	A	46	39	33	22	30	21	24	
		4	B	49	40	32	22	49	29	26	
		5	A	55	42	32	22	32	20	27	
		6	A	73	53	34	23	42	21	24	
Evening 17/09/2018 19:52 1-2 m/s NE 15 °C 3011822	35 dBA LAeq(15minute)	1	E	48	27	23	20	23	20	I/A	**Site Related Noise Events:** Not Measureable **Other Noise Events:** Cow 27 Distant traffic 26 Vehicle pass-by 50-79
		2	E	79	64	29	21	52	20	N/M	
Night 17/09/2018 22:01 1-2 m/s N 11 °C 3011822	35 dBA LAeq(15minute) 45 dBA LA1(1minute)	1	E	36	30	29	25	28	25	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Other mines 24-28 Non-relevant noise 36-55
		2	D	43	32	29	28	28	24	I/A	
		3	E	55	33	29	26	28	24	I/A	
		4	E	49	30	28	25	27	24	I/A	

N/M = Not Measurable, I/A = Inaudible

Table 14 Operator Attended Noise Survey Results – 60a – Matong/Coolmalgah (Day 2)

Period Date/Start Time Weather SLM Details	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						TCM Contribution (dB)	Description
				LAmax	LA1	LA10	LA90	LAeq	LAmin		
Day 18/09/2018 13:39 4-5 m/s NW 25 °C 3011822	35 dBA LAeq(15minute)	1	D	49	43	39	29	36	27	28	**Site Related Noise Events:** Truck noise 28-30 General site activity 27-31 **Other Noise Events:** Other mines 27-38 Wind related noise 39-58 Birds 60-65 Vehicle pass-by 60-73
		2	D	65	53	45	30	42	27	28	
		3	C	58	48	43	33	39	30	29	
		4	B	57	46	40	31	37	28	29	
		5	D	73	56	41	32	46	28	N/M	
		6	C	64	52	40	28	40	25	28	
42Evening 18/09/2018 21:24 3-4 m/s N 23 °C 3008204	35 dBA LAeq(15minute)	1	D	58	54	51	42	47	38	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Wind related noise 42-64
		2	D	64	58	54	43	50	40	I/A	
Night 18/09/2018 22:00 3-4 m/s N 22 °C 3008204	35 dBA LAeq(15minute) 45 dBA LA1(1minute)	1	D	61	57	52	44	49	41	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Wind/related noise 37-63
		2	D	58	54	50	43	48	39	I/A	
		3	D	63	56	51	41	48	37	I/A	
		4	D	61	61	51	43	48	40	I/A	

N/M = Not Measurable

I/A = Inaudible

Table 15 Operator Attended Noise Survey Results – 60a – Matong/Coolmalgah (Day 3)

Period Date/Start Time Weather SLM Details	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						TCM Contribution	Description
				LAmax	LA1	LA10	LA90	LAeq	LAmin		
Day 19/09/2018 13:43 5-6 m/s NW 26 °C 3008204	35 dBA LAeq(15minute)	1	D	60	54	50	37	46	36	N/M	**Site Related Noise Events:** Not Measurable **Other Noise Events:** Birds 51-64 Aeroplane 47-49 Thunder 88 Wind 50-65
		2	C	60	56	49	40	47	36	N/M	
		3	C	62	58	51	41	48	37	N/M	
		4	D	64	57	54	41	50	36	N/M	
		5	D	88	61	51	37	57	34	N/M	
		6	D	54	45	39	32	37	28	N/M	
Evening 19/09/2018 19:20 2-3 m/s W 23 °C 3011822	35 dBA LAeq(15minute)	1	D	42	41	40	37	39	30	29	**Site Related Noise Events:** General site emissions 27-31 Occasional dozer clangs 32-34 **Other Noise Events:** Insect 37-40 Non-relevant noise 42-44
		2	E	44	41	40	35	38	31	30	
Night 19/09/2018 22:00 1-2 m/s S 18 °C 3011822	35 dBA LAeq(15minute) 45 dBA LA1(1minute)	1	D	64	55	36	28	42	24	32	**Site Related Noise Events:** Truck noise 27-36 **Other Noise Events:** Other mines 29-35 Bird 41-64 Non-relevant noise 45-50 Aeroplane 34-39
		2	D	63	43	32	24	34	21	29	
		3	E	45	31	28	22	26	17	29	
		4	D	50	31	28	21	26	20	27	

N/M = Not Measurable, I/A = Inaudible

Table 16 Operator Attended Noise Survey Results – 60a – Matong/Coolmalgah (Day 4)

Period Date/Start Time Weather SLM Details	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						TCM Contribution	Description
				LAmax	LA1	LA10	LA90	LAeq	LAmin		
Day 20/09/2018 11:38 4-6 m/s SW 16 °C 3011822	35 dBA LAeq(15minute)	1	C	57	49	44	32	41	31	N/M	**Site Related Noise Events:** Not Measureable **Other Noise Events:** Birds 50-65 Wind related noise 30-51 Vehicle pass-by 70-85
		2	C	60	51	48	33	43	30	N/M	
		3	D	65	57	49	37	46	33	N/M	
		4	C	85	57	50	31	51	27	N/M	
		5	D	65	56	48	33	45	23	N/M	
		6	D	64	57	50	33	47	30	N/M	
Evening 20/09/2018 20:54 Calm 12 °C 3008204	35 dBA LAeq(15minute)	1	E	46	42	38	28	35	22	35	**Site Related Noise Events:** Haul Trucks 33-39 Excavator 38-44 **Other Noise Events:** Non-relevant noise 34-46
		2	E	46	42	39	29	35	22	35	
Night 20/09/2018 22:00 1-2 m/s N 11 °C 3008204	35 dBA LAeq(15minute) 45 dBA LA1(1minute)	1	E	39	57	35	26	31	22	31	**Site Related Noise Events:** General drone 24-36 **Other Noise Events:** Non-relevant noise 34-40
		2	F	40	33	30	24	27	21	29	
		3	D	39	36	32	26	30	22	29	
		4	D	35	31	29	22	26	19	26	

N/M = Not Measurable

I/A = Inaudible

Both TCM and Boggabri Coal operations were audible during the day, evening and night-time noise monitoring, with both generating similar noise levels. The total noise levels remained below the 40 dBA $L_{Aeq(15minute)}$ cumulative noise criteria.

6 Conclusion

SLR was engaged by Whitehaven Coal Limited to conduct attended noise monitoring for the TCM in accordance with the Tarrawonga Coal Mine Noise Management Plan.

Operator attended noise monitoring was conducted at three (3) locations in order to determine the noise performance of the TCM, with compliance achieved at all locations during all time periods.

Both TCM and Boggabri Coal operations were audible during the daytime noise monitoring, with both generating similar noise levels. The total noise levels remained below the 40 dBA $L_{Aeq(15minute)}$ cumulative noise criteria.

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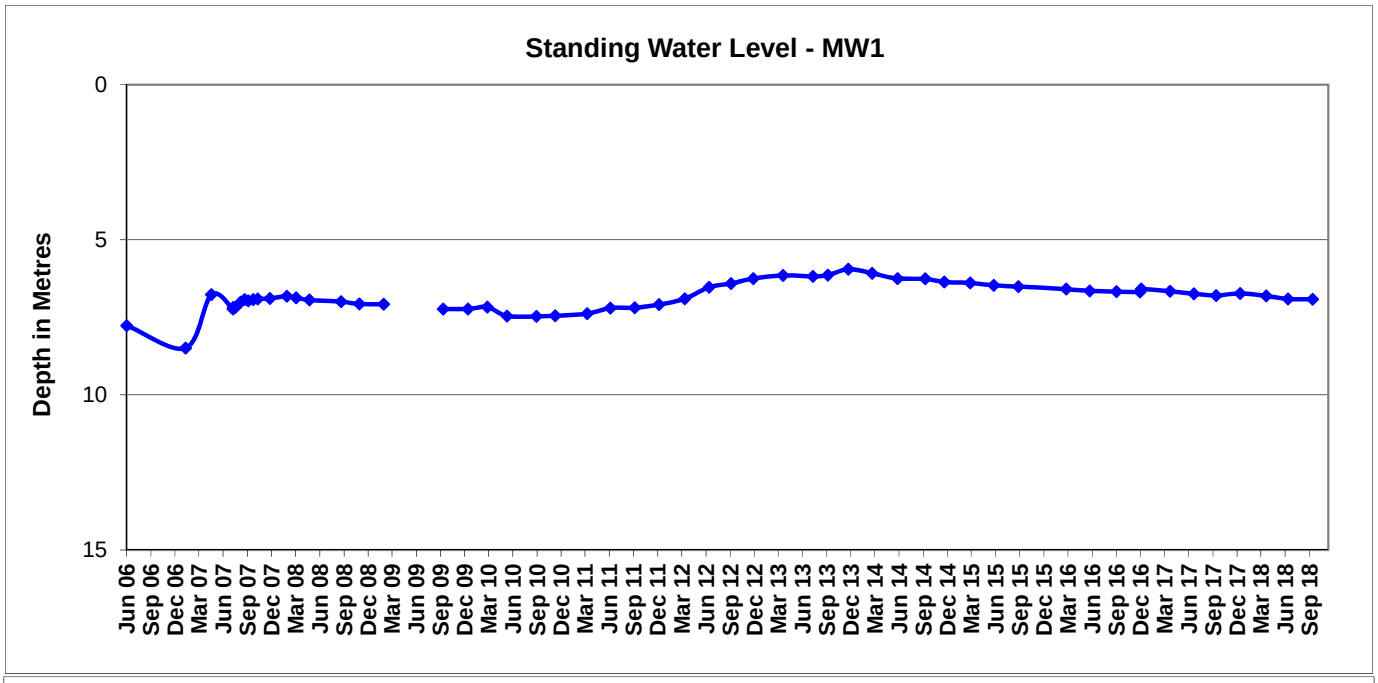
Appendix C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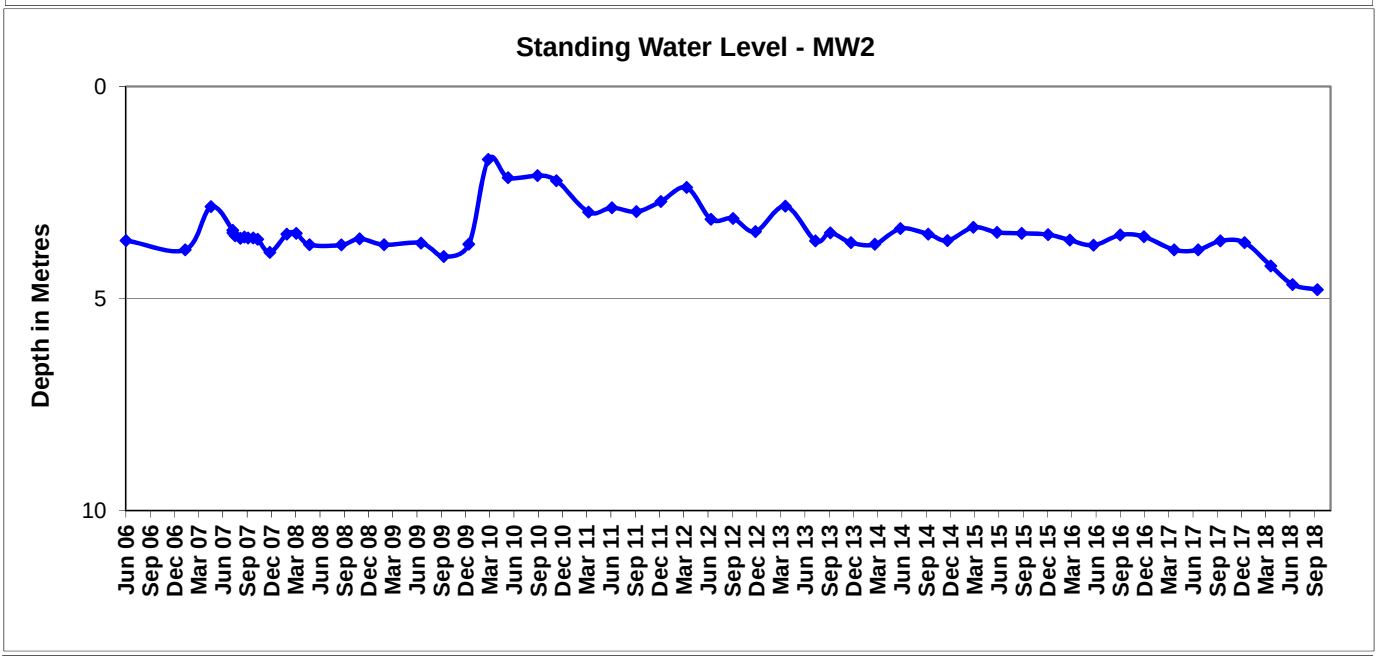
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Depth in Metres
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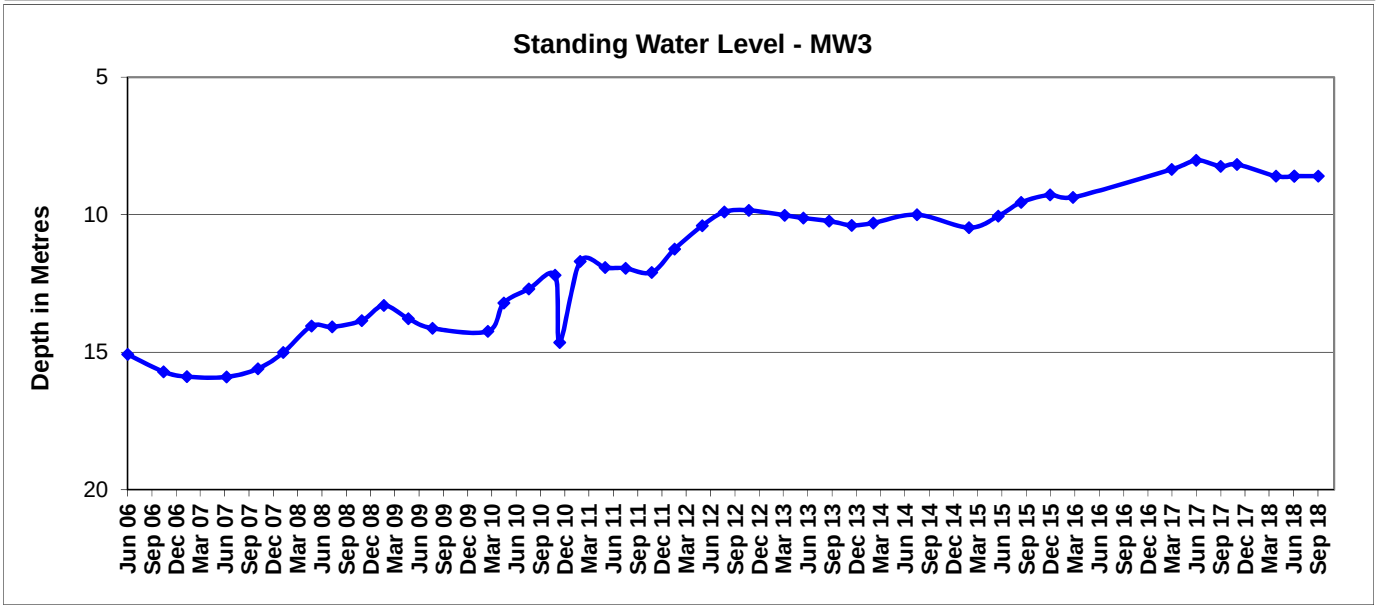
Standing Water Level - MW3
Depth in Metres
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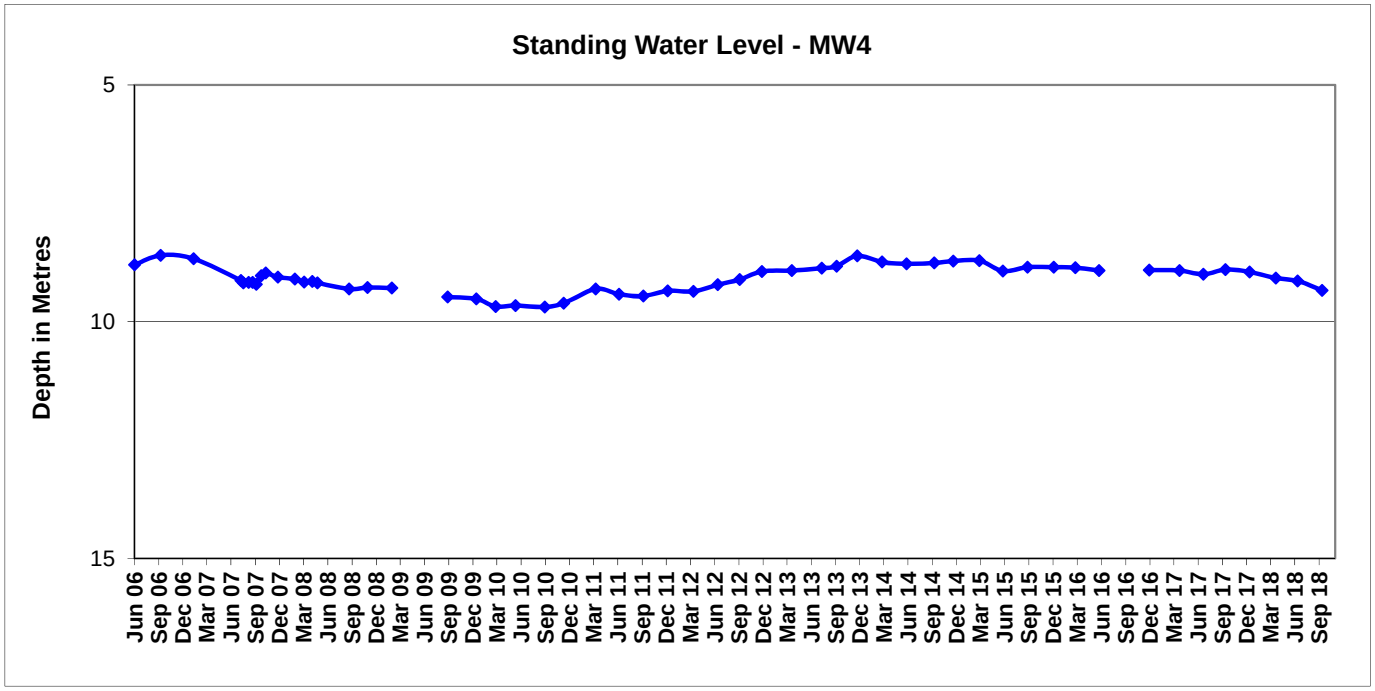
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Depth in Metres
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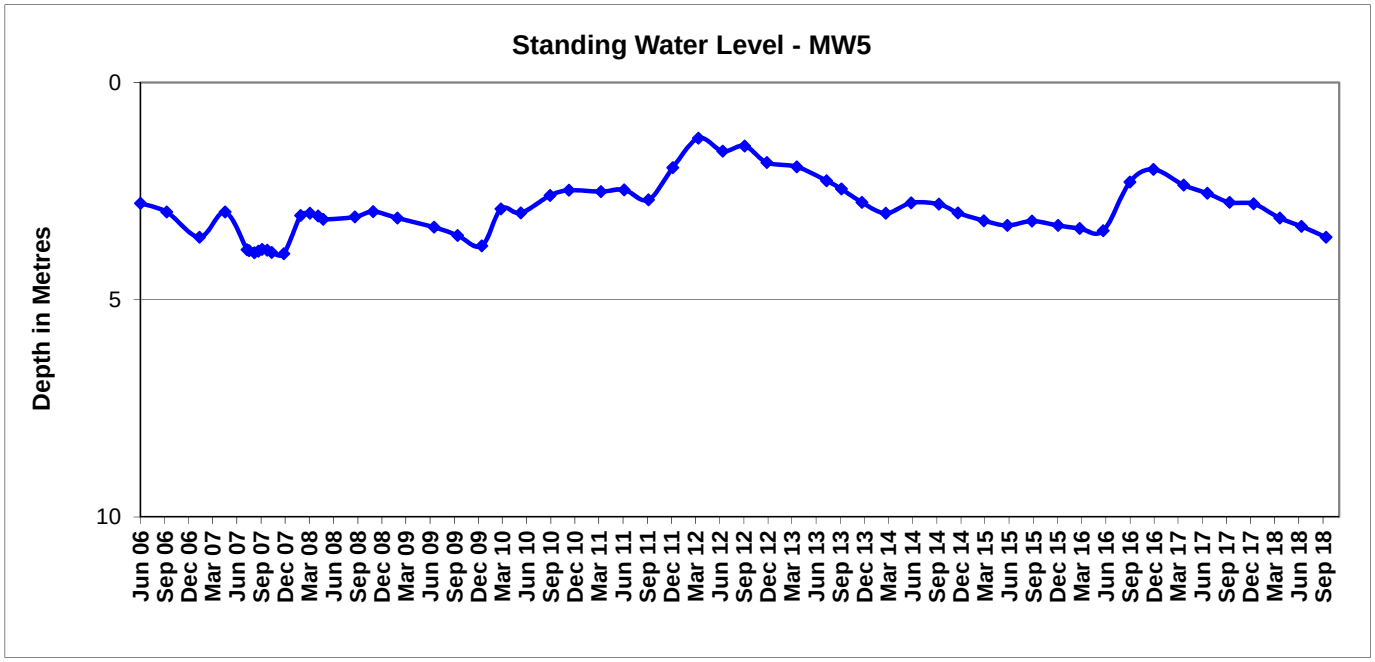
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Depth in Metres
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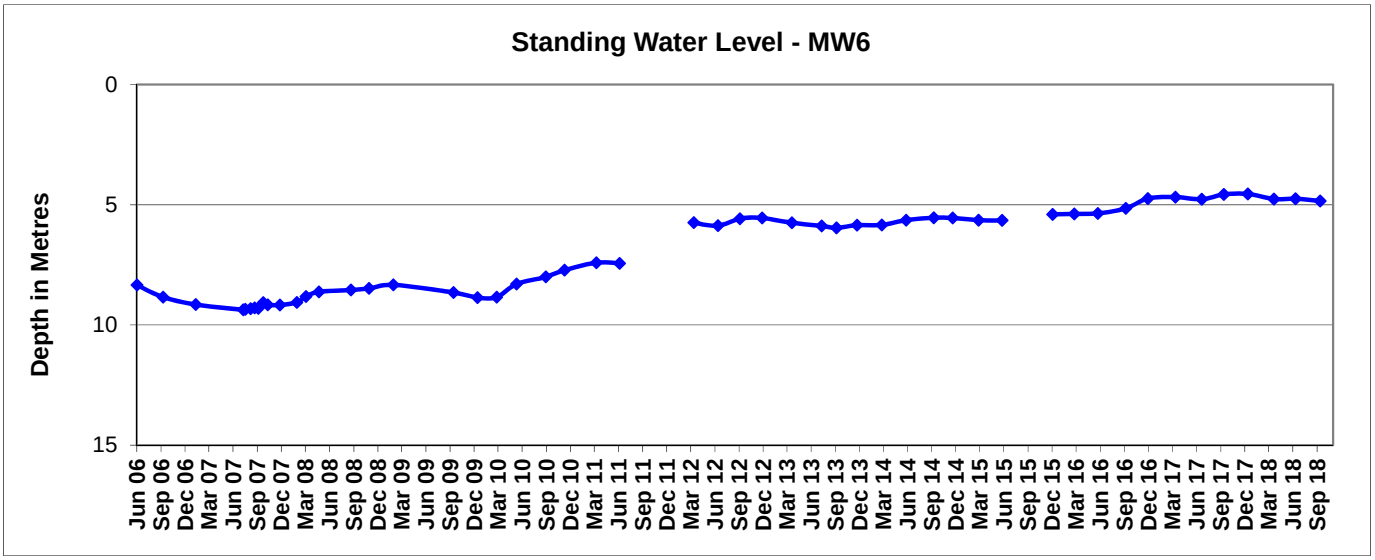
Standing Water Level - MW6
Depth in Metres
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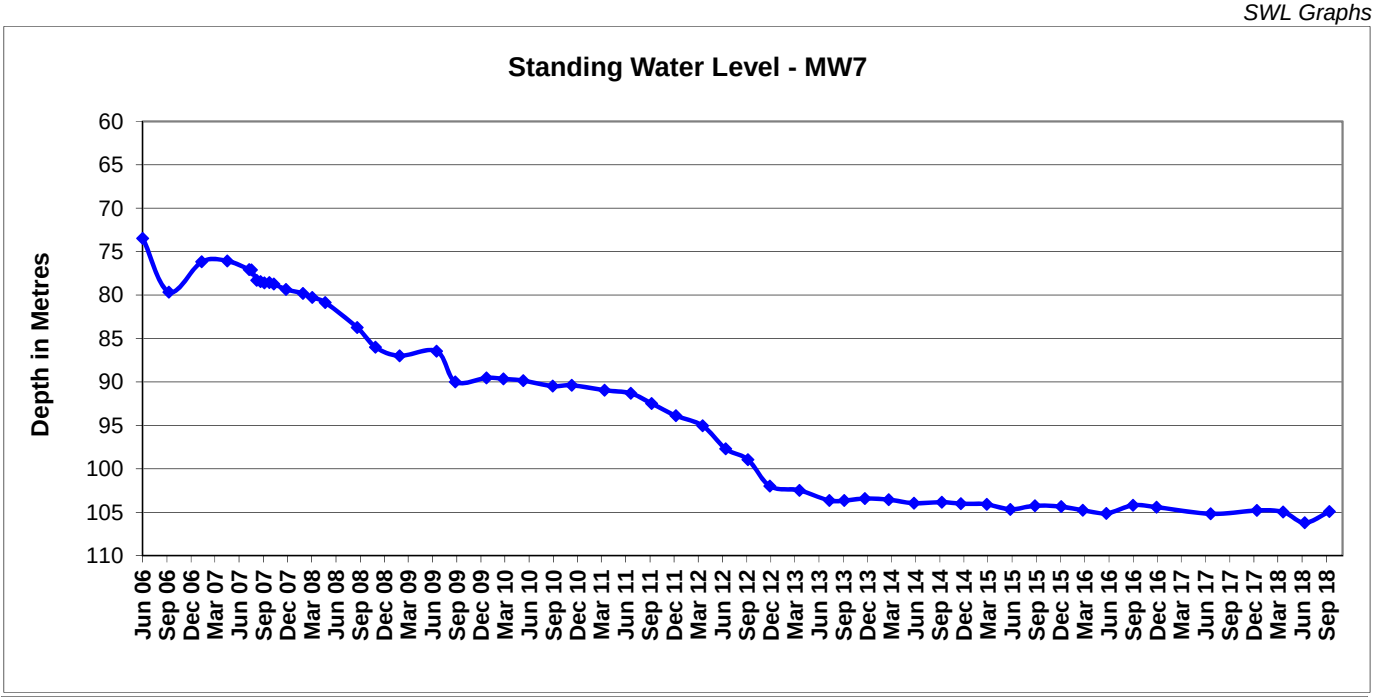
Standing Water Level - MW7
Depth in Metres
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65
70
75
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85
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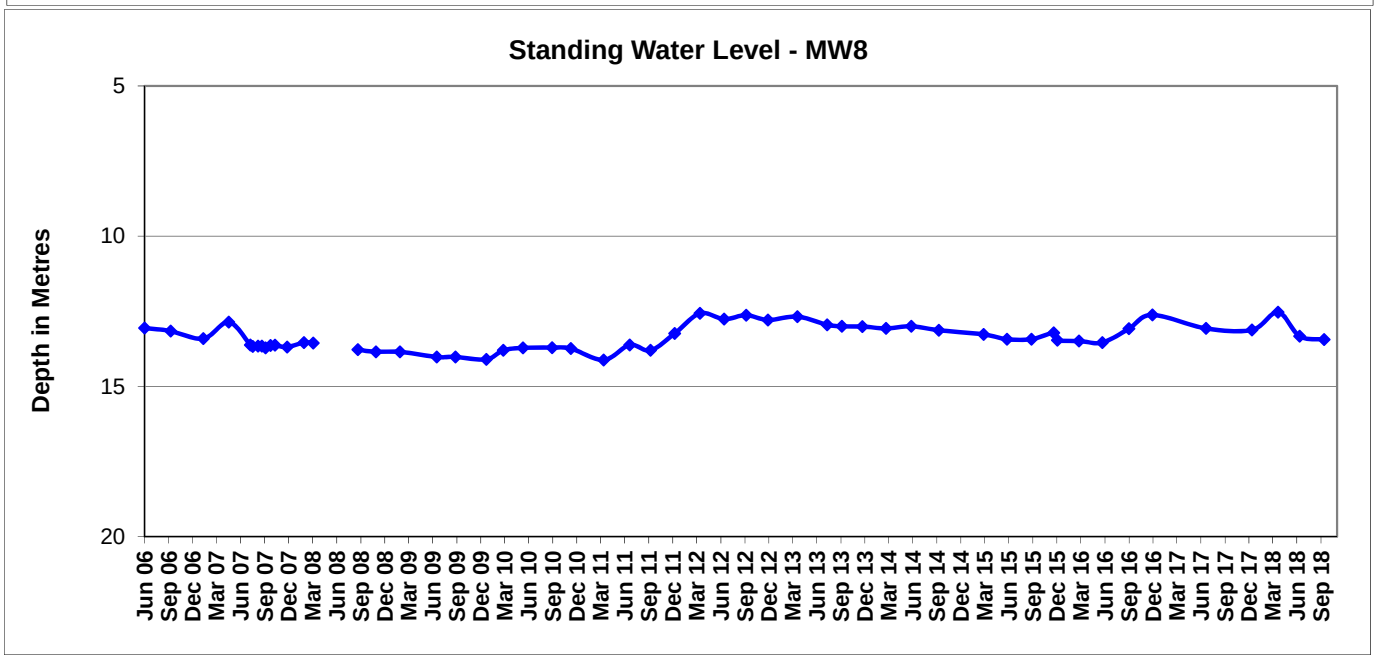
Standing Water Level - MW8
Depth in Metres
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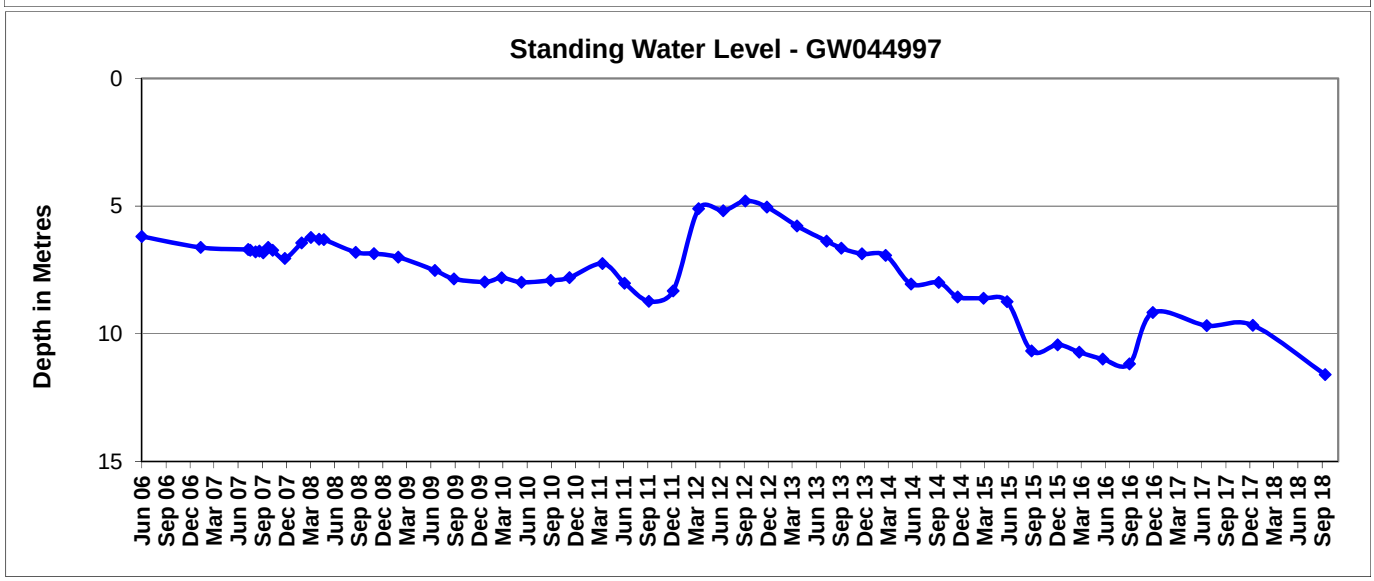
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Depth in Metres
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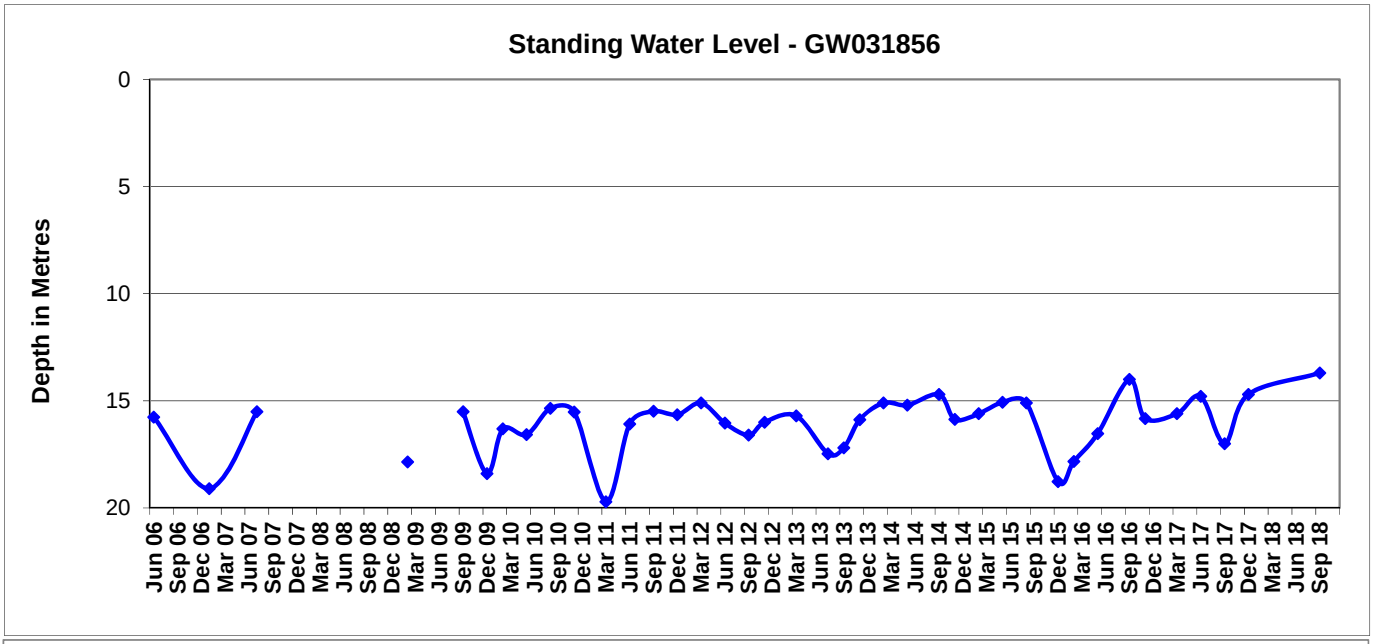
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Depth in Metres
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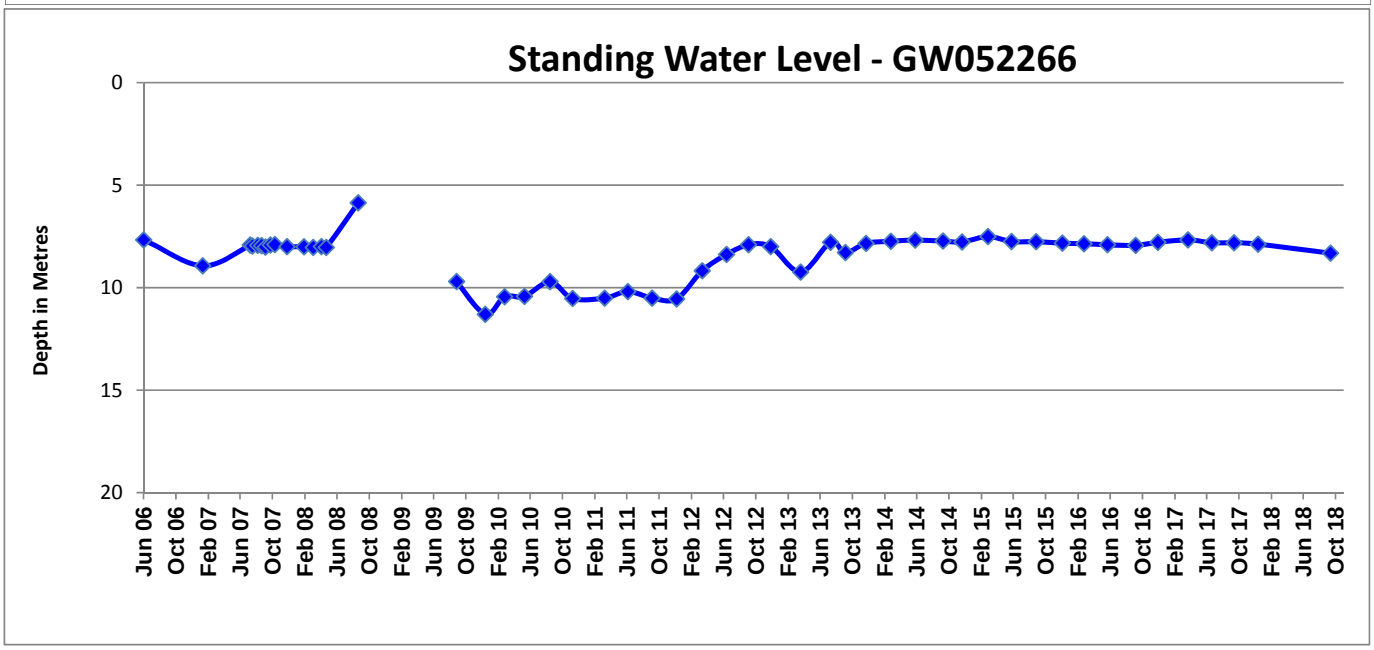
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Depth in Metres
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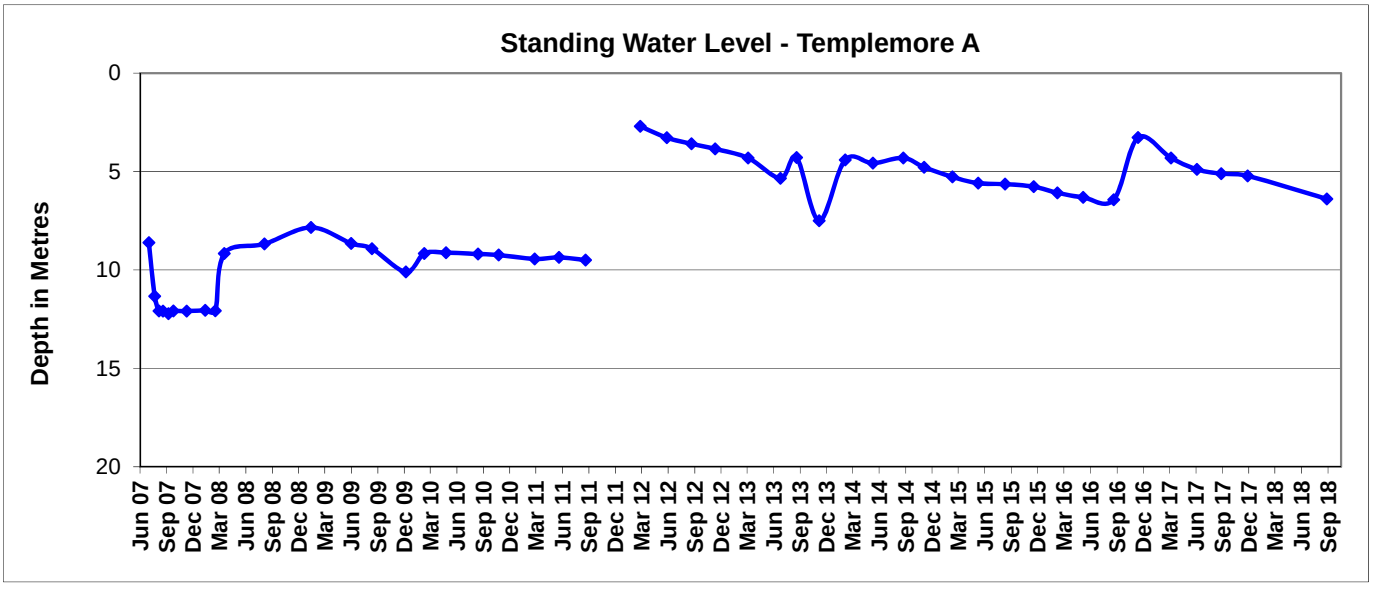
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Depth in Metres
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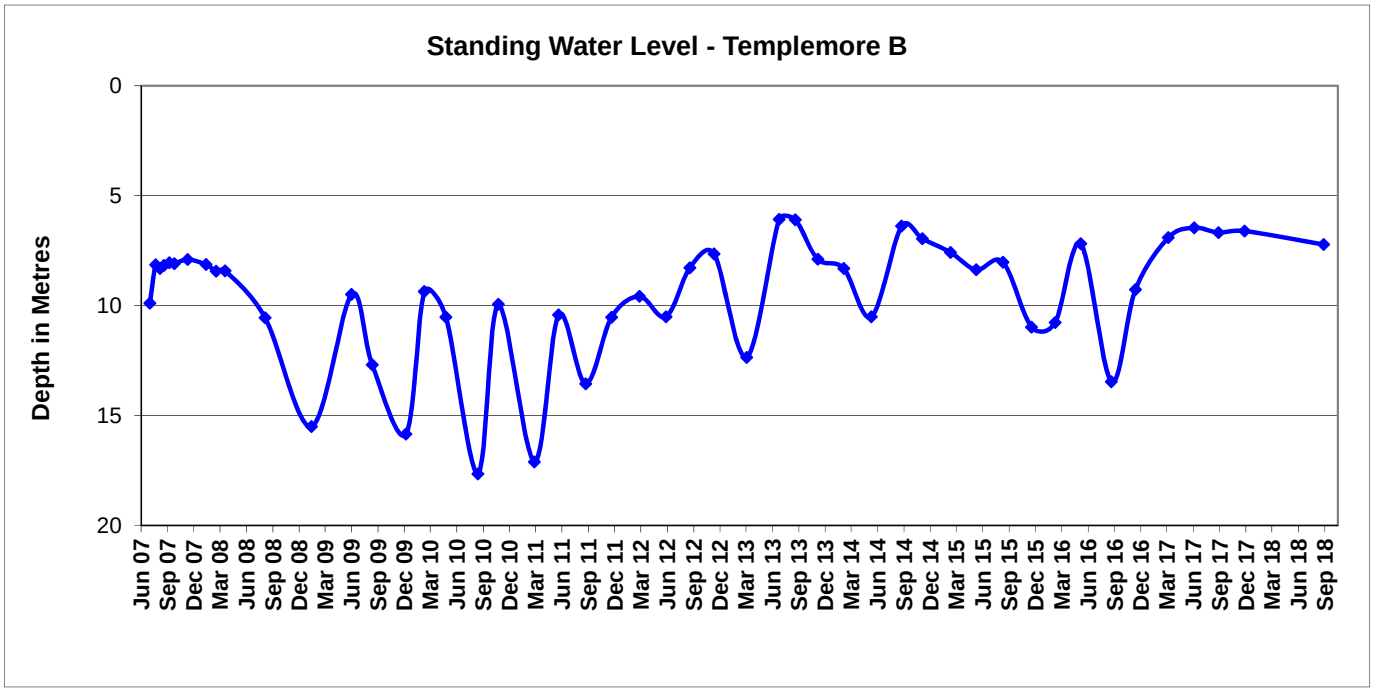
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